



DIGITAL ERA COMPETITION: A BRICS VIEW

REPORT

*BY THE BRICS COMPETITION
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I. Introduction

We are happy to present the Draft BRICS academic report on *Digital Era Competition Law: A BRICS Perspective*. The report engages with one of the most crucial questions of our time, the public governance of the digital economy, in particular focusing on the new forms of competitive interaction in the era of digital capitalism. New questions emerge out of the transition from the old to the new economy, which require ‘outside of the box thinking’ in order to inform policymakers and help to broaden the current narratives. Competition authorities have recently engaged in significant preparatory work, often in partnership with academics, in order to reflect on the challenges set by the digital economy to modern competition law enforcement. There have been a number of insightful reports already published the last few months and more work in the making. None of these reports has nevertheless so far engaged with the rapidly developing digital economy of emerging and developing jurisdictions, and in particular the BRICS, which represent a third of the world economy and a significant part of the global digital economy.

This gap was identified by the heads and representatives of the five BRICS competition authorities in the meeting of the BRICS Competition Authorities Working Group on Digital Markets at Sochi in September 2018, which, following up an exploratory report presented by Professors Ioannis Lianos and Alexey Ivanov, commissioned the BRICS Competition Law and Policy Centre established by the HSE-Skolkovo Institute for Law and Development, to prepare an academic report. This report would aim to explore the broader challenges the digital economy sets for competition law enforcement and to reflect on a new theoretical framework and some policy recommendations for the BRICS competition authorities to consider in their enforcement and policy work. The academic report would complement the BRICS Authorities’ Digital Markets Working Group report, which was prepared in parallel and which would present the vision and priorities of each of the BRICS competition authorities with regard to competition law enforcement in the digital economy.

In this work, the BRICS Competition Law and Policy Centre, under the leadership of its Director Professor Alexey Ivanov and the academic guidance of Professor Ioannis Lianos, established a network of academic collaborations with a number of BRICS partners and international partners in order to complete this task. In addition to the HSE University in Russia, the BRICS academic partners included Insper and FGV Sao Paulo in Brazil, JIRICO at O.P. Jindal Global University and CUTS International in India, Shanghai Jiao Tong University and Peking University in China, the University of Cape Town in South Africa. The work of these BRICS-located teams was coordinated and led by Professor Ioannis Lianos, the academic director of the BRICS Competition Law and Policy Centre, and was supported by the team of the Centre for Law, Economics and Society (CLES) at UCL Faculty of Laws in London, and a team of international academics, in particular Pro-

fessors Nick Economides, Hamid Ekbia, Bjorn Lundqvist, Evgenia Motchenkova, Pierre Regibeau, Nicolo Zingales and Dr. Hans Hendrik Eller, Mr. Andrew McLean, Dr. Igor Nikolic, Dr. Azza Raslan and Dr. Matthew Jay Strader.

The work of the BRICS academic team was inspired and supported by an international advisory board, headed by professors Eleanor Fox and Josef Stiglitz, with the participation of Professor Aditya Bhattacharjea, Dr. Cristina Caffarra, Judge Dennis Davis, Professor Nicholas Economides, Mr. Evgeny Kaspersky, Professor Lawrence Lessig, Professor Tshilidzi Marwala and Dr. Evgeny Morozov, who will play a significant role in the next phase of the consolidation of the final report to be released in November 2019.

We would like to express our profound gratitude to the heads and the staff of the BRICS competition authorities for their support during the preparation of this report. In particular, our thanks go to the head of the Russian FAS, Professor Igor Artemiev, and to the President of CADE in Brazil, Alexandre Barreto de Souza, who co-chair the digital markets group at BRICS, as well as the deputy head of FAS Professor Andrey Tsarikovskiy, for their gracious support during the preparation of this report and for enabling the coordination with the wonderful team preparing in parallel the BRICS authorities report led by Ms. Patricia Alessandra Morita Sakowski. The BRICS competition authorities offered invaluable support, by providing information whenever asked, completing a competition authorities' survey and helping the BRICS academic teams to organise a series of stakeholders' workshops in all BRICS jurisdictions.

The team took indeed an evidence-based approach to the preparation of the report. Our aim was to combine the insights of academia with information collected 'on the ground' in the course of a number of workshops held in each jurisdiction with the local stakeholders, including start-ups, large digital firms, legal and economic practitioners active in the digital economy, representatives of consumer associations and the local academic community. The workshops were co-organised with the international partner of the project, CLES@UCL and local partners. Following a preparatory meeting held in London in November 2019, five stakeholder workshops were held, first in March 2019 in Delhi (co-organised with CUTS International), then in April 2019 in Peking (co-organised with Peking University), followed by workshops in Moscow in June 2019 (co-organised with HSE), in Sao Paulo in July 2019 (co-organised with Insper) and in Pretoria in August 2019 (co-organised with the South African Competition Commission). In addition, the provisional results of the research were discussed in preparatory open conferences held in Moscow in December 2018 and in St. Petersburg in May 2019.

This intensive authorities-academia collaboration, at a transnational and global level, is quite unique and certainly contributes to the richness of the perspectives offered in this report. Our aim was to offer a critical discussion of the current debate, but also to contribute to the global discussion over the role of competition law in the digital age by offering a distinct development perspective that we consider is key for the BRICS countries and other emergent economies around the world, and which, in our view, was not the focus of all other projects undertaken on this issue in the more developed jurisdictions. We were particularly interested in putting at the centre of our study the process of value

extraction and capture in operation in the digital economy, and to draw lessons from these processes for the optimal design and enforcement of competition law.

This research would not have been accomplished without the contribution and support of a number of junior and senior academic colleagues, from the BRICS countries and beyond. We thank all the teams that have contributed during the last year to this difficult task under very tight deadlines. They had to deal with the relative paucity of information, as this is the first research effort undertaken on the BRICS enforcement activity in the digital economy and on the overall digital ecosystem in each of the BRICS countries. In addition to the members of the various BRICS teams, we would like to thank some anonymous reviewers of the country reports, and professors Aditya Bhattacharjea, Paulo Burnier da Silveira, Geeta Gouri, Marcio de Oliveira Junior.

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We hope that the report of the BRICS academic team will contribute to the global debate on the role of competition law in the digital economy and will provide the opportunity to the broader competition law and economic community as well as the general public to engage with the exciting developments and challenges that the digital age sets for competition law enforcement.



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II. Executive Summary

The Macro level: Digital competition – Technology and Business Environment (Chapter 1)

Digitalization has played a major role in globalization. However, at the same time, it accelerated the dramatic **growth of inequality** on the global and local scales, making this one of the key challenges for the further advancement of the digital economy. Developments in machine learning, advances in computing power, blockchain technology and data availability (including big data and smart data) will alter the global economy even further in the direction of digital capitalism. The emergence of the **fintech industry** provides an illustration of the complex interplay between the processes of datafication and financialisation and the emergence of specific forms of digital competition that may look different from the competitive process in the ‘Old Economy’. These developments come with many risks and problems of ensuring competition in the digital environment, especially in the face of the growing power of digital platforms, and rising inequality.

The current policy responses to these challenges posed by advances of the digital economy are often falling into ‘a mechanistic trap’, the mechanistic legal tradition established during the previous stages of the industrial development. This often leads to **fragmented and disconnected legal regimes** for each of the digital economy phenomena (i.e. big data, digital platforms, social networks and AI), without any effort to define an integral vision for a digital future that is desirable from a social contract perspective. This ‘mechanistic’ approach helps to retain the status-quo without establishing strong, transnational, countervailing regulatory regime(s) for the digital giants. This makes the creative development of the competition law toolkit and a **more holistic perspective on its interactions with other legal fields** even more crucial. As the competition law historically was meant to add flexibility to the regulatory environment and to address challenges of economic transformation caused by the technological development during the industrial revolutions of the past, it can be a useful again to deal with similar challenges set by the digital economy – growing inequality and economic unbalances.

The **BRICS countries** occupy a significant place in the global digital system, despite important differences within the group. BRICS countries, though sufficiently diverse, have much to gain from increasing digitalization in terms of overcoming internal challenges and enhancing their role in the global economy. The BRICS countries have integrated digitalization into their strategic policies and developed government strategic management tools to promote digitalization. They have followed a measured approach to regulating the digital sphere, while taking care not to stifle new and emerging markets and technologies with overregulation. BRICS cooperation aims to embrace the peculiarities

of globalization in its current phase. What is common for the BRICS jurisdictions is that they are all in search for a solution allowing to shortcut the developmental track. This experimentalist energy and creativity, which is a characteristic of the group, is extremely important during the current phase of global economic development. It is not only the institutional structure of the global order that is in transition but also the very nature of the global marketplace.

While hindering efficient expansion of digital players can prevent innovation and decrease consumer welfare in a dynamic setting, the global aspect of digital markets also entails issues of **distributive justice**. Competition policy could be guided by a more nuanced approach, recognizing the countries' relative positions along the **global value chains** and the possible distributive implications of competition law enforcement.

This includes approaches focused on '**digital sovereignty**', a definitive part of which is data sovereignty. The long-term trend in digital trade is erasing the boundaries between goods, services and intellectual property. Data is effectively becoming the new fuel of global economy. These changes raise profound regulatory challenges for global digital trade and cross-border data flows. Regulators must confront competing interests including those revolving around **data protection** and **economic development**.

Barriers that hinder cross-border data flows inevitably influence digital trade. **International economic governance** has achieved a great deal of institutionalization and some results in terms of enforcement. In any case, regulatory cooperation seems to be the way forward for the international governance of the digital economy, which may constitute points for convergence for future regulation. This requires a parallel agenda on building up the confidence of domestic regulators to allow data to leave the jurisdiction without undermining regulatory goals. The claim is that the model for the future will be based on persuasion and a global community of shared approaches with a structured engagement for coordination and harmonization. The approach by BRICS countries should respond to the dynamic needs of the digital economy and has the potential to shape a new common discourse in the area. One may distill from the above some general directions:

- The key focus of the new global competition policy should be the **facilitation of openness among global networks and value chains** through the reduction of the manipulative and exclusionary potential of digital platform and the elimination of barriers imposed on the global diffusion of innovation by both the global technological monopolies and cartel-like technological joint ventures burgeoning within their "walled gardens" at the expense of consumers, entrepreneurs, and the general public.
- A **human-centric approach** to the IP rights protection and the promotion of **open access and data commons regimes** can be included into the competition assessment matrix ensuring systemic resilience and sustainable development

- It is desirable to keep trying to **establish an effective global regime** for the protection of fair and equitable competition in the digital economy. Today such global legal framework does not exist. The BRICS countries have to play a key part to play in the development of a structured engagement for **international coordination**, based on a community of shared approaches and standards to deal with international cross-border data governance and its competition effects.
- Competition authorities need to analyse carefully the interactions within traditional banks, Fintech and Big Tech, and monitor market developments in order to **identify tipping points and potential bottlenecks** that might lead to emergence of dominant financial platforms and exclusion of competitors from the market.

The Economics of Platforms – theories of harm, efficiencies and methodologies (Chapter 2)

In the last decade, BRICS competition authorities have obtained records on competition enforcement towards Multi-Sided Platforms (hereinafter MSPs). Under enforcement of competition legislation, theories of harm in investigations and decisions are mostly of an exclusionary, not exploitative, nature. Exclusionary discrimination and tying are typical qualifications of anticompetitive conduct. Exclusionary effects are important competition concerns under merger approval.

MSPs organize interactions between users so to **internalize cross-side network externalities**. Learning about the business model of the platform (or platforms), a taxonomy of MSPs from the interaction of and the pricing to the sides of the platform becomes an important starting point. Supply side characteristics of MSP are relevant as well, with the presence of economies of scale and learning by doing, and innovation intensive business models.

The cross-side network effects are central when evaluating substitution patterns and price effects for each platforms and, more important, cross-side effects. These effects influence **market definition** under the Hypothetical Monopolist test and SSNIP tests. If cross-side effects are positive, a price increase on one side that is profitable under a one-sided analysis might become non-profitable. The decrease in sales on side A of the hypothetical monopolist's platform reduces sales on side B, which is typical of cross-side effects, that further provides feedback and reduces sales on side A further. Not taking into account the cross-platform effects would lead to define markets too narrowly.

The supply side characteristics of MSPs, which they share with other digital businesses are relevant for understanding platform related leveraging. These platforms often experience scale and learning economies. This interacts with innovation-based competition dimensions and large start-up or fixed costs.

Following the step of market definition, any **concentration measures** may not be informative of the market power of the platform. First, platforms are often innovation-based, disrupting businesses and market shares may change rapidly as in any market characterised by dynamic competition. Second, MSPs are differentiated products, where mark-ups are weakly associated with concentration measures. Third, pricing formulas in transaction or non-transaction platforms show that standard Lerner indices are invalid when calculated using costs (or prices) from one side of the platform. Lerner indices for MSPs must incorporate the cross-side effects.

Any **inference on anticompetitive price effects** from mergers may be obtained by expanding price pressure indices for two sided platforms. GUPPI/UPP like formulae highlight that cross-side effects amplify the increase in price pressure, say, on the price of side A of the merged platform 1, as an increase in demand on side A of merged platform 2, would boost sales in side B of platform 2. This second effect reinforces the incentives to increase prices in side A of platform 1. Only if the cross-side effects are not present, using the standard formula would not underestimate the effects.

As in any other market, **exclusionary practices** may also be observed in MSPs. The nature of MSPs requires four changes in the usual investigative tools and effects analysis. First, Price-cost comparisons in MSPs are not recommended, as optimal pricing formulas, with no exclusionary or abusive intent generate below cost pricing. Second, the network effects and issues of single- and multi-homing, generate 'tipping' points in the demand for a platform. This can both consolidate exclusionary practices and make them more effective. Third, platforms often create markets, therefore solving information problems in markets. This institutional role of the platform can generate efficiencies (creating a market) that are very hard to quantify and balance with respect to competition across platforms or a benchmark without the platform. Fourth, learning-by-doing technologies generate dynamic competition exclusionary opportunities, as younger firms have cost disadvantages that may not disappear over time or predatory pricing practices recoup period have lower costs. These business dimensions become central in the analysis of exclusionary practices.

No restriction on **multi-homing** is a universal remedy under both investigations of infringements and merger notifications. Special attention to vertical restraints with exclusionary effects reflects post-Chicago law and economics concerns about incentives to restrict competition. In this respect, the approach of BRICS contradicts neither the economic theory of competition in platform markets nor the practice of developed countries. An important gap in the decisions is the efficiency defence; competition authorities rarely undertake this type of analysis. It seems that neither do companies under enforcement try to develop this line of defence. Decisions on MSPs in BRICS rarely use a specific economic theory of platform competition (if any do so at all). They mostly rely on the standard theory of competition.

Competition policy analysis of MSPs should recognize the **dynamic nature of competition** in such businesses. MSPs are often innovations that may create monopolization, while at the same time such dominance can be quickly erased by new platforms and

business models. While new ways of doing business require new analytical tools, such innovation markets are not unknown to competition authorities. A look at the less used tools in the known toolbox would help meet the challenge of competition policy analysis of MSPs, complementing the adapted tools described here.

Last but not least, the economic theory of platforms does not exclude **exploitative theories of harm**. However, BRICS competition authorities do not apply them. In some BRICS countries, specific regulatory requirements are designed to support inter- and intra-platform competition. Their impact on rivalry and efficiency should be studied further.

The private governance of digital platforms: looking beyond the streetlight (Chapter 3)

The **operating logic of digital platforms** is embodied in their **private governance regime**. Such regimes have been treated as a somewhat natural outgrowth of a business plan for long, entailing that the competition law response should be forbearance. Yet, recent studies show the **strategic and design-based dimension** behind private governance regimes which appear as crucial for the generation and capture of value for digital platforms.

To understand the centrality of private governance, the ‘global value chain’ framework of analysis as developed by Gary Gereffi serves as illustration. Here, private governance plays **the double role of enabling and regulating global production**. It provides the instruments, legal and other, that animate the value chain and connect chain actors with each other in order to accomplish an integrated production process. Such governance regimes can encompass contracts but also business routines and practices, logistics, reporting documents and practices, as well as reputation and trust. Generally, private governance encompasses legal, social, and technological/algorithmic elements of governance.

Based on an **empirical view at the governance structure of major digital platforms** from various business sectors, it seems worthwhile to distinguish between **platform-to-business (P2B)** and **platform-to-consumer (P2C) relations** and to locate governance regimes on a scale between “participatory/collaborative” to more “captive/intrusive” governance. Central criteria for this attribution are (1.) entry and exit barriers of the ecosystem; (2.) the degree of formality and transparency of governance instruments and conditions, (3.) the degree of customizability of the governance model and the platform use; (4.) the price model; (5.) the functionality of dispute mechanisms.

While P2B relations face regulatory constraints essentially through competition law, P2C relations are put under additional scrutiny by consumer and privacy law. The contractual governance regimes of **P2B relations** are used to create loyalty to the platform and consolidate it as a privileged channel for marketization of the respective goods and services. In addition, they guarantee a broad discretion of governance and busi-

ness development for the platform through tailored dispute mechanisms and rules of unilateral adjustment and termination. Essential clauses concern data transferability, price-setting, and suspension of service/membership.

In **P2C relations**, private governance serves the purpose of community-building in order to consolidate consumer loyalty and extract value from repeated transactions and activities on and off the platform which generate a data set that platforms aim to merge. To do so, they generally implement far-reaching privacy rules, while being complaisant on other aspects of the consumer experience (with lenient cancellation rules, a right to withdraw from contracts, return purchased items etc). Essential clauses concern the legal qualification of the agreement, rules on privacy, and liability.

The following **policy recommendations** are put forward:

First, any regulatory intervention needs to be assessed against its effects on the private governance of platforms. Given that there is high homogeneity across platforms in the private governance regime, public intervention can increase the standards for this level-playing field and generally lead to a fairer allocation of the surplus value (in a P2B context) and better data protection (in a P2C context).

Second, a promising way forward is the establishment of model clauses as is currently under way in Europe. This approach is however limited to a formal, contractual level of governance that leaves informal, social and technological levels unaffected.

Third, competition law is well-placed, probably better than any other legal regime, to capture the nuanced interplay between legal, social and technological governance and power that is characteristic for private governance. Hence, its more expansive use may be justified on comparative institutional analysis grounds.

The Meso Level – The need for a new conceptual framework for the digital economy (Chapter 4)

As the global economy incurs a process of transformation by the ongoing ‘fourth industrial revolution’, competition law is traversing a ‘liminal’ moment, a period of transition during which the normal limits to thought, self-understanding and behaviour are relaxed, opening the way to novelty and imagination, construction and destruction. There is need for the discussion over the role of competition law in the digital era to be integrated to the broader debate over the **new processes of value generation and capture in the era of digital capitalism** and the complex economy to which it has given rise to. This complex digital economy is formed by a spider web of economic links, but also their underpinning societal relations, between different agents. However, competition law still lives in the simple world of neo-classical price theory (NPT) economics, which may not provide adequate tools in order to fully comprehend the various dimensions of the competition game. The emphasis put recently by competition authorities on **multi-sided markets** in order to analyse restrictions of competition in the data economy illustrates the agents’ changing roles and the complexity of their interactions, as the

same agents can be at the same time consumers and producers while their personal data raw material for the value generation process.

It becomes therefore essential to uncover the new value capture and value generation processes in operation in the digital economy, and draw lessons for the optimal design and enforcement of competition law, rather than take the established competition law framework as a given and try to stretch within it a quite complex reality that may not fit this Procrustean iron bed. These approaches should engage with the **complex economics** of digital capitalism, and in particular the role of futurity and financialisation, personalisation and cybernetics.

These new developments, first, call for a re-conceptualisation of the **goals of competition law** in the digital era, as competition law moves from the calm and predictable waters of 'consumer welfare', narrowly defined, to integrate considerations of income/wealth distribution, privacy and complex equality.

Second, it also requires a revision of the current understanding of the nature of the competitive game, which only focuses on horizontal rivalry in product and eventually technology markets. This is of course an important dimension of competition, but hardly the most significant one in the current process of value generation and capture in the digital economy. Firms do not only compete on the product market dimension, but in the today's financialised economy, probably the most important locus of competition is capital markets. The **process of financialisation** has important implications for the development of digital capitalism, an issue that the Report explores in detail for the first time in competition law and economics scholarship. Financial markets evaluate companies in view of expected returns in the not so near future, often linked to the emergence of bottlenecks or the perception that a firm holds important assets and resources (e.g. data, algorithms, specialised labour). The role of financial markets' evaluation in driving business strategies in the era of digital and financialised capitalism is linked to the 'subtle shift of mindset' in digital capitalism 'from profit (and isolating mechanisms) to wealth creation (and the potential for asset appreciation)' as value is created by investing in assets that will appreciate.

Third, this calls for a consideration not only of horizontal competition, but also **vertical competition**, the competition for a higher percentage of the surplus value brought by innovation, and competition from complementary technologies that may challenge the lead position in the value chain of the incumbents (**vertical innovation competition**). Fairness considerations, among other reasons, may also lead competition authorities to not only focus on **inter-platform/ecosystem competition** but to also promote **intra-platform/ecosystem competition**, as this may be a significant element of the competitive game.

To implement this broader focus of competition law, we need to develop adequate conceptual tools and methodologies. A recurrent problem is the narrow definition of market power in competition law, whose presence often triggers the competition law assessment, and which is also intrinsically linked to the step of market definition. This

currently ignores possible restrictions of vertical competition, personalisation and the **predictive role of digital platforms**, which may become source of harm for consumers, the competitive process, or the public at large.

It is important to engage with concepts of vertical power and the Report develops a **typology of vertical power**, combining in an overall conceptual framework the various concepts of non-structural power that have been used so far in competition law literature and some new ones (positional and architectural power). This conceptualisation offers an overall theoretical framework for vertical power that is necessary for sound competition law enforcement, and which has been lacking so far. The Report also explores specific **metrics for vertical power**, although this is still work in progress.

Another important tool that competition authorities may employ in order to map the complex competitive interactions (horizontal and vertical) in the digital economy is the **value chain approach**. Although competition authorities have already used this tool in sector/industry inquiries, they have not in competition law adjudication. A value chain approach enables competition authorities to better assess the bargaining asymmetries across the various segments of the value chain that may result either from the lack of competition on the markets affected or from the central position of some actors in the specific network and their positioning in the value chain. This tool may complete the market definition tool.

The effectiveness of competition law in the digital age may be curtailed by the cross-side network effects linked to positive feedback loops, increasing returns to scope and scale, the intense learning effects linked to AI, and the propensity of digital markets to tip. Hence, competition law on its own may not be sufficient to address the market failures in the digital economy. One therefore needs to take a **toolkit approach** that would combine different fields of law and regulation, competition law playing a primordial role in this new regulatory compass. This toolkit approach may rely on different combinations in each jurisdiction, on the basis of the institutional capabilities and the relative efficiency of the various regulatory alternatives, any choice being between imperfect, if perceived in isolation, institutional alternatives.

On the basis of the above, the Report makes the following recommendations:

Incorporate in the current competition law framework the **insights of complex economics**, either at the level of the conceptual framework and operational concepts used by competition law authorities (e.g. tipping points, leveraging points), or at the level of the tools and methods employed (e.g. agent-based modelling, value chains). The BRICS competition authorities should invest in the development of new tools making greater use of AI and computational economics in competition law enforcement.

Adopt a **multi-dimensional perspective on the competitive game**, which focuses not only on horizontal competition but also on **vertical competition**, and which engages with the way the process of **financialisation and futurity** may alter the traditional competition law assessment.

Make more use of **vertical power and vertical power metrics**, as additional filtering tools for competition law enforcement. The Report offers a unified theoretical framework for the various illustrations of vertical power that have been used so far and suggests some new ones (e.g. positional and architectural power, panopticon power), as well as some first ideas on metrics.

Make use of the **value chain methodology** in mapping competitive interactions (horizontal and vertical) in the digital economy.

Develop a **toolkit approach** that combines competition law enforcement with other tools of intervention, including regulation, creating property rights on data, establishing countervailing powers to tame digital platforms, and promoting a **polycentric** vision of **competition law**.

Expanding the scope of competition law intervention and remedies (Chapter 5)

The digital economy raises important challenges for the scope of competition law: personal, material and geographical.

In view of the dominant role of digital platforms in the world economy, and the ‘winner-take-most’ competition game, where ‘superstar firms’ command growing market shares and become highly profitable, the labour’s share is in significant decline. The forms of labour in the digital economy have also dramatically changed. However, despite the **weak position of labour vis-à-vis the digital platforms**, there are fewer possibilities of labour to organise and collectively bargain with digital platforms, as this may fall under the scope of competition law and do not benefit from the labour law exception routinely recognised to trade unions. This may raise difficulties in **view of the changing nature of labour relationships** in today’s ‘gig’ or ‘collaborative’ economy and the collapse of the traditional binary divide between employment and self-employment. Of particular interest is the development of alternative work arrangements which are facilitated by digital platforms, which create new digital marketplaces to supply labour for temporary use (‘labour value platforms’).

Digitalization has also made possible the emergence of other value-generating activities that may not fit well within the strict boundaries of the concept of ‘labour’. These varieties of human activity not only contribute different forms of value that go beyond traditional labour, they also involve different social roles and different forms of relation to modern technology. We will refer to the concept of ‘**use**’ as a separate concept from that of labour.

The development of platform work raises interesting questions as to the respective scope of labour law and competition law in engaging with, and regulating, these new emerging labour market dynamics. Promoting **collective bargaining of ‘labour’ or ‘users’** and designing competition law so as to address issues of labour market power may

provide a possible solution to the power of digital platforms by taking a **countervailing power approach**.

Blockchain may also curtail the ability of competition regulators to identify the entities that would be liable for competition law infringements and to adopt appropriate remedies and sanctions and the Report explores options for addressing this problem.

The material scope of merger control may also be revisited and some jurisdictions (e.g. Austria and Germany) have already engaged with the adoption of '**value of the deal**' **notification thresholds**. We view positively these developments.

The most important issue curtailing the ability of competition authorities of BRICS but also emergent economies to deal with the global digital giants that have emerged are issues of international comity and also **effectiveness of enforcement jurisdiction** (competition law remedies) This arises in particular if remedies are imposed on companies which do not have significant assets in the specific jurisdiction. A possible way out of this conundrum is to enhance **international cooperation**, also in designing appropriate remedies, in particular during today's globalized and digitalized economy.

The choice between competition law and other regulatory regimes is also an issue that needs to be explored by each jurisdiction according to its specific circumstances. The **creative interaction between competition law and other regulatory regimes** on data protection, interoperability, data portability, at the level of building specific theories of harm for the digital economy opens an important space for experimentation for competition authorities in the future.

Redesigning competition law enforcement for the digital age also requires the following two changes.

First, it becomes important to **ensure the rapidity of competition law enforcement** so as to avoid acting in situations when market tipping has already occurred and it might prove impossible to reverse the anticompetitive outcome, by adopting more easily interim measures, eventually commitment decisions and reforming the judicial review standards of competition authorities' decisions.

Second, it is crucial to develop remedial action that takes into account the broad effects of the anticompetitive conduct, which might better reflect the complexity of digital markets. **Competition law remedies in the complex digital economy** include the use of various forms of separation (including structural break-up), preventive structural adjudication, *ex ante* or *ex post* regulation of algorithms, data portability, the expansion of data commons, the facilitation of data clubs and interoperability, self-regulation and co-regulation through the adoption of codes of conduct, competition by design. The Report explores in detail these various remedial tools.

The last Section of this Chapter offers a statistical **overview of competition law enforcement** in BRICS jurisdictions.

We proceed to the following broad recommendations (for reasons of space specific recommendations addressing each type of remedy are not included in this Executive Summary):

- Develop new competition law concepts and metrics and reflect on the way **protection of labour** considerations may be integrated in the current competition law framework. BRICS competition authorities should establish a **working group** exploring the competition law implications of **labour market power** by digital platforms, the interaction of competition law and labour, as well as explore the implications of **blockchain technology** for competition law adjudication and enforcement.
- Establish mechanisms that would promote the remedial effectiveness of BRICS competition law authorities, in particular vis-à-vis the global digital giants. A possible first step will be the **sharing of information**, between like-minded authorities, or in the context of existing cooperation networks (e.g. BRICS) that could be organized by different MoUs, one dealing with merger issues and one with antitrust. Some prior informal communication and concertation may also be fruitful for developing BRICS-wide remedies that may address competition law problems that could be of concern for all or a number of BRICS jurisdictions. This cooperation could even take the form of **BRICS-wide or global commitments** by the digital platform to the authorities, the latter acting jointly. These processes may be combined with the sharing of analytical tools, industry intelligence and best practices in the context of a BRICS research consortium or common research platforms.
- Ensure the adoption of an efficient procedural framework and a more **targeted and intensive use of interim measures**.
- Develop a **holistic framework for competition law remedies** in the complex digital economy, by issuing **remedial guidelines**, at the BRICS level, that would state the law in each jurisdiction and could eventually attempt to frame some common broad remedial principles or meta-principles that should drive remedial action.

Ensuring efficient and fair distribution of products and content (Chapter 6)

Although platforms offer but one possible channel for sellers to bring products to the market, they provide a readily available distribution network and unprecedented scale at great convenience, which is virtually impossible to match for sellers. However, there is increasing tension between the attractiveness of this model and the **potential cannibalizing effects** that relying on platform sales might have on one's own distribution channel.

MFN clauses play a crucial role in that regard, as they enable platforms to ensure price parity with other channels. Hence, the stance that competition law takes in regard to

these practices can have significant effects on the structure of the retail market. An important related question is the extent to which **outright bans on distributors to use platforms or price comparison tools** are compatible with competition law. This is typically not an issue in BRICS jurisdictions, where platforms have been perceived as offering a unique opportunity to reach the target audience and enforce selective distribution systems, facilitated by the increased ability to monitor and detect deviations. However, for the same reasons digital technologies also facilitate the enforcement of **RPM and price discrimination**, for instance through geoblocking, geofiltering and other technological protection measures.

With regard to **content distribution**, it was noted that there are reasons to doubt that BRICS jurisdictions will condone the extension outside the EU of the contractual restrictions imposed by copyright owners in reflection of the stricter copyright regime. This suggests that BRICS economies are likely to maintain a different landscape in distribution and copyright enforcement, despite the global or macro-regional nature of prevalent platform businesses.

With the increasing platformization of retail, perhaps the most contentious topic is the compatibility with competition law of the **dual role played by e-commerce operators**, which serve both as “referees” in the marketplace and as “players” in the retail market. This is currently being investigated or has been subject to investigation in several EU jurisdictions, the US, Russia and India. India has gone as far as issuing a comprehensive regulation on foreign direct investment policy that forces foreign-owned platform to be merely a marketplace, rather than provide products through their own inventory. Such platforms are also prohibited from imposing exclusivity and directly or indirectly influencing the sale price of goods or services. Whether this *ex ante* approach is preferable to antitrust enforcement and is likely to be followed by other BRICS jurisdictions remains to be seen.

What is clear is that in this new technological environment competition authorities and courts are called to play increasing attention to the dynamics of competition within and across platforms ecosystems. In doing that, authorities should be cautious with the application of the so-called **agency immunity**, as that applies only under restrictive conditions. Most notably, the immunity cannot apply where one of the parties has significant market power, either in the intermediation market or in the market for the product or service that is being sold. Furthermore, there is reason to read the evolution of the agency doctrine to suggest a carve-out in situations of dependence deriving from superior bargaining power. Finally, the immunity cannot be invoked where the arrangement between the putative agent and principal involve horizontal collusion. This is an area that has seen significant enforcement, particularly in Russia and India, where authorities have condemned platform-enabled hub and spoke agreements. Once again, we can wonder whether it would be optimal to extend this approach across BRICS.

Exclusionary and unfair unilateral practices in reference to the digital economy: updating the current framework (Chapter 7)

There is an intense academic discussion regarding whether consumers and business users are exposed to conduct that may amount to competition law abuses when using services on the Internet. The discussion is connected to the Internet phenomenon of 'platforms' or intermediaries, i.e. Internet sites where users and potential purchasers of services and products are matched and interact with advertisers, business users, service provider or suppliers.

There is a relevant discussion regarding the restraints the **system leaders of the platforms or ecosystems** burden the business users connected to the ecosystems. Indeed, intra platform or intra ecosystem competition is a relevant notion. Successful platforms that have been able to tip the market for the platform service may obtain power not only in reference to the platform service market, but more importantly also in reference to the connected business users utilizing the service. Indeed, the system leader controlling the platform has gained power in the whole connected ecosystem to the point where it commands the interaction of the ecosystem.

In reference to data, several Internet sites, devices and machines are already today equipped with sensors to collect data and devices may run software to control and make interoperable the functioning of machines, but also to enable the interoperable smart kitchens, vehicles, and even cities. The system leaders of these smart interoperable systems may act as **gatekeepers**, controlling and locking-in customers, while excluding or limiting interoperability with other systems, specific device or machine-producing firms and customers, based on the access, use and re-use of data.

The chapter analyse exclusionary and unfair unilateral practices in reference to platform. May preventing **interoperability**, access to ecosystems or IT-systems and preventing **portability of data**, be considered abuse or monopolisation? Should **discrimination**, by not creating a levelled playing field, or by not displaying similar business users, on equal term, in search results or on product/services comparison sites be an abuse? Can **restricting access to data** be an abuse?

With regard to abuse, several jurisdictions focus on **leveraging**, while also identifying that the contracts between firms in the ecosystems may very well include **exclusivity on semi-exclusivity** clauses. The alleged abuses seem to be centred around platforms. Platforms may be used to favour or discriminate to the benefit of affiliated or directly owned firms in downstream, neighbouring or upstream markets. Indeed, platforms that have gained leading positions in the ecosystem have the power to exclude competitors or to lock-in customers or business users. In addition, their control and use of data regarding their customer and users, and their financial resources contribute to their leading roles within their respective networks vis-à-vis business users.

A way to resolve the issue of whether using network effect and tipping to gain monopoly would amount to an abuse, is to utilize the **principle of special responsibility**. When

a platform driven by indirect effect has been established, the system leader controlling the platform is allowed to continue operating the platform, yet he should be considered as the regulator of the connected ecosystem or network. There will be little, if no, competition for that network or ecosystem and the system leader therefore has a special responsibility to preserve competition by creating a levelled playing field for downstream and connected markets, similar to the duty of a regulator to ensure that the regulated market produces outcomes equivalent to those of a competitive market.

Dealing with algorithmic collusion (Chapter 8)

There is now significant literature (although less empirical research) indicating that the use of algorithms not only facilitates explicit agreements between firms, it can also result in tacit coordination and, moreover, **facilitate tacit collusion**. Analysis of the existing models of algorithmic collusion implies that it is possible for independent algorithms to coordinate and sustain prices close to collusive level.

Both the use of algorithms to monitor and enforce existing agreements and coordination by pricing algorithms themselves not only facilitates tacit and explicit collusion but also makes it more difficult to detect the violations. **Detection** would become more difficult as there would be fewer opportunities to obtain hard evidence. At the same time, the range of detection tools will have to be expanded including **new software screening tools** and **new regulatory agencies with experience in IT and AI**. These agencies should have a capacity and expertise to be able to detect, document and verify the use of prohibited algorithms or algorithms that can be potentially harmful for consumer welfare. **Per se prohibition of certain types of algorithms** can also be an option. Also other policy instruments, such as e.g. leniency programs, will have to be redesigned.

From the legal perspective, we conclude that the current **antitrust concept of collusion** and its emphasis on communication is not sufficient to take into account all forms of algorithmic collusion. It is probably sufficient for the situations of coordination on pricing algorithms and third-party-pricing. But it is not sufficient for the situation of autonomous tacit collusion by **learning algorithms** themselves.

The policy options for competition law and competition policy to deal with the increasing threat of algorithmic collusion at the moment seem to be rather limited. Algorithmic collusion could be considered as a violation of competition law only if the **concept of an agreement is extended** to cover also this new type of collusive behaviour. But even then, serious difficulties remain with respect to the detection as well as the verification of algorithmic collusion. The Report explores the following options:

- As a first step, competition authorities should support (and engage in) **empirical work** on algorithmic collusion. They should also revisit their application of the existing legal framework in situations of algorithmic collusion, eventually by considering that certain types of algorithms may constitute '**super plus**' **factors** facilitating collusion. They should also develop algorithmic tools to detect

collusive activity, following the example of some BRICS competition authorities, in particular in Brazil and in Russia.

- As a second step, competition authorities should revisit their understanding of collusion as engaging some form of communication, and legislators should reflect on the cost and benefits of **expanding the concept of antitrust collusion** to cover situations of collusion by learning algorithms.

Reforming merger policy (Chapter 9)

From Facebook acquiring WhatsApp and Instagram to Microsoft buying out LinkedIn, Skype and Github or Google swallowing Motorola Mobility, DoubleClick or Nest Labs, mergers and acquisitions in the digital economy have been controversial. Some of the concerns have been fairly traditional.

While the development of the digital economy does not either call for a revolution in how we conduct merger control, it is likely to require some significant changes in competition guidelines and will require close coordination between competition authorities and other regulatory agencies.

The main characteristics of digital technologies are algorithms, data, bridging of distance and speed. These characteristics have a number of important consequences. **Algorithms** are difficult to fully grasp and even harder to police. This makes the detection of abusive conduct and the implementation of effective remedies harder. Stepping back, then, this might justify a tougher line for mergers which are likely to facilitate such abusive conducts. On the other hand, in our view at least, the purported effect of algorithms on companies' ability to implicitly collude does not have strong implications for merger policy, except maybe for having a closer look at mergers in somewhat less concentrated markets: if collusion is easier then the level of concentration at which it becomes feasible is also lower.

The bridging of distances has obvious implications for **market definition** when the merging parties take orders *and* deliver products online. A more subtle analysis is required when parties take orders online but still deliver goods or services physically. The relevant notion of "speed" is not speed of innovation. While many digital sectors are currently characterised by fast-paced innovation, there is nothing intrinsically "digital" to this trend. By contrast, it is because digital technology is fast (and spans distances) that network effects can arise much faster than in other sectors. This underlines the need for forward looking merger review and the possibility of using access/interoperability remedies.

The combination of algorithms and data has allowed unprecedented **targeting** of advertising to online consumers as well as a tailoring of the offers (including prices) received by each individual. This poses a serious challenge to our usual economic analysis of horizontal effects as well as to our traditional approach to market definition. In a very real sense, every individual becomes a "relevant" market, challenging traditional SSNIP tests and "market share-based" approaches to market power. Moreover, in such

an environment, the effects of a merger depend not only on the overlap between the customers served by each party but also on the amount and type of information that each party has about those customers. Unfortunately, economic analysis of competition in such settings, while already useful, is not yet mature.

Finally, while the role of data in digital competition is undeniable, we currently lack the information required to derive **broad principles** as to how data should be considered in merger review. The main problem is that, for a merger, it is mostly the *marginal* return to data which matters: would the combination of the data held by the two parties significantly raise barriers to entry? Would it generate significant merger-specific efficiencies? There is simply no publicly available information to allow us to at least establish some presumptions in the matter.

Notwithstanding these difficulties, the Report includes the following recommendations:

- Competition authorities should focus more on data and the way mergers may affect competitive rivalry in particular in view of **horizontal overlaps** between the merging parties when data is the relevant product.
- Regarding **data as inputs** in the production process, competition authorities should pay more attention to factors or deliberate strategies, which might hamper **access to resources** (such as data, or skilled labour). For example, contractual clauses or “gentlemen’s agreements” preventing poaching or draconian non-compete clauses can restrict the flow of necessary skills, especially when the relevant labour markets have a significant local dimension (e.g. Silicon Valley).
- Competition authorities should focus on **‘attention markets’** as digital platforms operate as “attention brokers”, whose main goal is to attract users and get them to spend time in their respective “ecology”. Hence, a platform’s ‘market power’ now depends on its ability to retain users within its own ecology and to use this to restrict the supply of advertising, leading to higher prices for both advertising and the corresponding products.
- Competition authorities should revisit the way they examine **counterfactuals** in merger control. In the context of the fast moving, from a technology and consumer preferences, perspectives digital economy, counterfactuals should inevitably become more speculative.
- Competition authorities should adapt the **standard of proof** for anticompetitive effects of mergers in the digital economy, in particular in markets with tipping effects, and should also re-think the **intensity of judicial review** of their decisions, in order to enable a more dynamic assessment of mergers and the use of more speculative theories of harm, such as restrictions to potential competition or harm to innovation.

Challenges ahead – Competition law at the era of the Internet of Things (IoT) (Chapter 10)

The chapter looked into the future developments with the advancement of 5G standard and the Internet of Things (IoT). We are increasingly seeing various objects connected to the internet and witness the gradual emergence of connected cars, connected domestic appliances, smart health devices and even smart cities. The successful implementation of IoT will generate many challenges, of which we identify the use and application of two different layers of standards – **‘infrastructure’ standards** that read on physical objects that enable connectivity between them (such as 5G and Wi-Fi standards), and **‘upper layer’ standards** that concern data acquired by IoT objects. In order for an IoT ecosystem to work efficiently we would need to have seamless connectivity between different IoT objects, and thus ubiquitous access and use of infrastructure standards, as well as access to data generated by different objects. For example, self-driving cars would all need to use 5G and other infrastructure standards and would need to share driving data between them.

The successful implementation of infrastructure and upper layer standards can pose different challenges. Namely, patents that read on infrastructure standards would need to be widely available and licensed. **Standard essential patents (SEPs)** are generally required to be licensed on fair, reasonable and non-discriminatory (**FRAND**) terms, but what exactly those terms mean is subject to diverging interpretations. Disputes concerning the licensing of SEPs are no longer only a US or an EU phenomenon, large high technology companies are increasingly using BRICS countries as a venue for litigation. However, the amount of litigation in BRICS countries is uneven and there is a lack of predictable rules and practices.

Data-sharing in upper layer standards presents further challenges. There is a tension between, on the one hand, the need to enable seamless functioning of IoT systems via data-sharing and, on the other hand, the need ensure privacy of individuals and compliance with data protection rules. In the absence of specific legal rules, competition law may potentially apply, or companies may voluntarily exchange data in **data pools** or use **blockchain** technologies. Combination of various measures could be used for enabling successful data sharing mechanisms.

The chapter offers the following policy recommendations:

- **Consider publishing ‘best-practices guidelines’ on FRAND SEP licensing practices and litigation** at a national and/or BRICS level. The aim of such guidelines should be to bring transparency and legal certainty to market participants. Guidelines should take into account current best practices from the EU and the US and must equally take into account the interests of both technology developers and standard implementers.
- **Consider adopting targeted sector specific legislation and promote the formation of data sharing platforms.** Such sector specific legislation should

identify critical areas where regulatory intervention is needed, while ensuring the compliance with data-protection rules. Regulatory authorities might also consider promoting the formation of data pools, but also ensure they do not cause anti-competitive effects.

Dealing with restrictions on privacy as a competition law problem (Chapter 11)

The recent controversy on the intersection of competition law with the protection of privacy, following the emergence of big data and social media is a major challenge for competition authorities worldwide. Recent technological progress in data analytics may greatly facilitate the prediction of personality traits and attributes from even a few digital records of human behaviour.

There are **different perspectives globally as to the level of personal data protection** and the role competition law may play in this context, hence the discussion of integrating such concerns in competition law enforcement at the BRICS level may be premature. However, a **market failure approach** may provide common intellectual foundations for the assessment of harms associated to the exploitation of personal data, even when the specific legal system does not formally recognize a fundamental right to privacy.

The Report presents a model of market failure based on a **requirement provision in the acquisition of personal information from users of other products/services**. We establish the economic harm from the market failure and the requirement using the traditional competition law toolbox. Eliminating the requirement and the market failure by creating a functioning market for the sale of personal information is imperative.

Besides the traditional analysis of the requirement and market failure, we note that there are typically **informational asymmetries** between the data controller and the data subject. The latter may not be aware that his data was harvested, in the first place, or that the data will be processed by the data controller for a different purpose, or shared and sold to third parties. The exploitation of personal data may also result from economic coercion, on the basis of **resource-dependence or lock-in of the user**, the latter having no other choice, in order to enjoy the consumption of a specific service provided by the data controller or its ecosystem, than to consent to the harvesting and use of his data. A behavioural approach would also emphasise the possible internalities (**demand-side market failures**) coming out of the bounded rationality, or the fact that people do not internalise all consequences of their actions and face limits in their cognitive capacities.

The Report also addresses the way competition law could engage with exploitative and exclusionary conduct leading to privacy harm, both for *ex ante* and *ex post* enforcement.

With regard to *ex ante* enforcement, it explores how **privacy concerns may be integrated in merger control** as part of the definition of product quality.

With regard to *ex post* enforcement, the Report explores **different theories of harm** that may give rise to competition law concerns and suggest specific tests for their assessment. In particular, we analyse **old and new exploitative theories of harm** relating to excessive data extraction, personalised pricing, unfair commercial practices and trading conditions, exploitative requirement contracts, behavioural manipulation.

We are in favour of collective action to restore the conditions of a well-functioning data market and the report makes the following recommendations:

- Reflect on **broader guiding principles on privacy-related competition law theories of harm** (from a market failure perspective). This could be done by a specific BRICS working group constituted to this effect.
- Explore legislative intervention **changing the 'default' regime for data harvesting from 'opt-in' to 'opt-out'** if the specific jurisdiction disposes of a data protection regime. This opens the possibility for a **possible compensation to the user for 'opting-in'** that is, for 'selling' his data. This may facilitate the **emergence of a licensing market for user data** for users opting-in to share their data with the platforms, thus dealing with the 'missing markets' problem and its associated effects.
- Facilitate the users to **collectively bargain** with the platforms rates for the payment they will receive for the data harvested in order to protect their personal data, thus neutralising the asymmetrical bargaining power of large digital platforms and digital giants.
- Promote **technological solutions** to the problem of restrictions to privacy by the business conduct of digital platforms or more generally user-initiated and driven practices that may frustrate the aims of the adds-based business models.

Chapter 1: The Macro level: Digital competition – Technology and Business Environment

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*Do not get set into one form, adapt it and build
your own, and let it grow, be like water. Empty
your mind, be formless, shapeless — like water.*

Bruce Lee, *A Warrior's Journey*

1.1. Introduction

1.1.1. The Main Challenge of Our Digital Future

Shortly before his passing, astrophysicist Stephen Hawking, when answering questions from science fans on his page in the r/science community on Reddit.com, gave the following comment on our society's development prospects related to the on-going technological changes: "If machines produce everything we need, the outcome will depend on how things are distributed. Everyone can enjoy a life of luxurious leisure if the machine-produced wealth is shared, or most people can end up miserably poor if the machine-owners successfully lobby against wealth redistribution. So far, the trend seems to be toward the second option, with technology driving ever-increasing inequality".¹

This fear expressed by Dr. Hawking is not unfamiliar to the BRICS leaders. Russian President Vladimir Putin shared similar concerns while addressing an international audience at the St. Petersburg Economic Forum held on 6-8 June, 2019: "Monopoly always means concentration of incomes in the hands of the few at the expense of all the rest, and in this sense, attempts to monopolise the new technological wave, limiting access to its results, are taking the problem of global inequality both among countries and regions and within countries themselves to an absolutely new and different level. And we are well aware that this is the main source of instability. It is not only about the level of incomes, income inequality, it is about the fundamental difference in people's opportunities. In fact, in the making there is an attempt to form two worlds, and the gap between them keeps growing. Where some people have access to the most advanced systems of education, health, modern technologies, others have neither prospects, nor chances to

1 Hawking S. AMA Answers // The New Reddit Journal of Science. Science AMA Series. Submitted on 08 Oct 2015. URL: https://www.reddit.com/r/science/comments/3nyn5i/science_ama_series_stephen_hawking_ama_answers/cvsdmkv/

escape poverty, and still others are hardly balancing on the verge of survival”².

Chinese President Xi Jinping in his recent keynote speech at the World Economic Forum was also highlighting this problem emphasizing that “[t]he richest one percent of the world’s population own more wealth than the remaining 99 percent” and “[i]nequality in income distribution and uneven development space are worrying”³. And he concludes that growing global inequality “is the biggest challenge facing the world today”⁴.

The first-ever Digital Economy Report released on 4 September 2019 by the United Nations also highlights this problem, as noted by the UN Secretary-General António Guterres, in a foreword to the report: “Digital advances have generated enormous wealth in record time, but that wealth has been concentrated around a small number of individuals, companies and countries. Under current policies and regulations, this trajectory is likely to continue, further contributing to rising inequality”⁵.

Recent empirical research has revealed that over the last 25 years, the top 1% have gained more income than the bottom 50% put together and “[f]ar from trickling down, income and wealth are being sucked upwards at an alarming rate”⁶. As an outcome, since 2015, the richest 1% has owned more wealth than the rest of the planet⁷.

Risks of ignoring this problem may be extremely high. For example, Joseph E. Stiglitz points out in his well-known book “The Price of Inequality” that growing inequality leads to significant losses for societies and governments, as well as provoking development imbalances that result in long-term instability.

This is not just a problem of some individuals or even countries that had a run of bad luck and find themselves at the bottom of social or global hierarchy, but relates to a wider problem of performance, resilience and in the long run survival of the entire human society: “Widely unequal societies do not function efficiently, and their economies are neither stable nor sustainable in the long term”⁸, Stiglitz concludes.

Unfortunately, as this concern over a surge in inequality at the current stage of industrial revolution has actually become almost a truism in the current discussions about the digital economy⁹, very few actual measures to tackle this problem are implemented. The UNCTAD, which highlighted this problem in the recent UN Digital Economy Report, has

2 http://kremlin.ru/events/president/news/60707?fbclid=IwAR38iZbXoaP2u4H0E2Ht2LCuosyYrXmw_jAGwmJnMLk7R1lK_NA1KTa9VUc

3 Keynote Speech by H.E. Xi Jinping, President of the People’s Republic of China at the Opening Session of the World Economic Forum Annual Meeting 2017, Davos, 17 January 2017, <https://america.cgtn.com/2017/01/17/full-text-of-xi-jinping-keynote-at-the-world-economic-forum>

4 Ibid

5 The Digital Economy Report 2019, UNCTAD, https://unctad.org/en/PublicationsLibrary/der2019_en.pdf

6 Oxfam, An Economy for the 99%, Oxfam Briefing Paper, 2017, https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp-economy-for-99-percent-160117-en.pdf

7 Ibid.

8 Stiglitz J. The Price of Inequality: How Today’s Divided Society Endangers Our Future. W. W. Norton Company, 2012. P. 83

9 See, for instance: Piketty T. Capital in the Twenty-First Century. Harvard University Press, 2014; H.Ekbia, B.Nardi, Heteromation, and Other Stories of Computing and Capitalism (MIT Press, 2017)

already been vocal about this for a number of years, as, for instance, in its 2017 annual report, it mentioned that “hyperglobalization has led to a considerable concentration of economic power and wealth in the hands of a remarkably small number of people”¹⁰.

Far from being solved, this problem is only getting worse against the backdrop of current technological shifts and the global economy’s transition to a new quality – the digital economy. Digitalization has played a major role in making the global economy more globalized and interconnected. But it has also probably contributed to another major redistribution of wealth on the global scale. There are different opinions on the factors that contributed to this redistribution of wealth happening in the context of the digitalization of the global economy. But it would be myopic not to pay attention to one particular phenomenon that is also closely related to the competition law and policy debate in the digital economy.

The growing world power of digital platforms, which like spiders drag an increasing number of economic activities and economic values into their digital webs, worsens rather than reduces the inequality problem. As the UN Digital Economy Report shows, the platform-based economy is growing fast with an estimated combined market value of the leading digital platform companies becoming 67 per cent higher just in a period of two years between 2015 and 2017, when it increased from 4 to 7 trillion USD¹¹. Add to this that already in 2018 and 2019 Apple, Amazon and Microsoft – three out of seven “super platforms” (Microsoft, Apple, Amazon, Google, Facebook, Tencent and Alibaba), each exceeded a \$1 trillion market valuation. At the same time, some empirical studies conducted recently show that the rapid process of digitalization during the past decade does not seem to have translated into strong productivity growth; on the contrary, that growth has slowed¹². According to the UNCTAD, global employment in the information and communication technology sector increased from 34 million in 2010 to 39 million in 2015, and the share of this sector in total employment rose over the same period, from 1.8 per cent to 2 per cent.

This quite limited achievement of the digital economy in bringing a rise both in productivity and employment on the global scale compared with the soaring market valuation of the major digital platforms could be a sign of a serious flaw in the legal and economic regulation of the digital economy in need of being addressed. The hyperglobalization and digitalization have become mutually supportive forces driving the growth of inequality in the global economy. Vladimir Lenin shortly after the Russian Revolution marking the destruction of the old world of empires and the beginning of painful transition towards a new economic order famously stated that “Communism is Soviet power plus the electrification of the whole country”.¹³ The modern leaders of digital capitalism

10 UNCTAD Trade and Development Report 2017, https://unctad.org/en/PublicationsLibrary/tdr2017_en.pdf

11 Ibid. P. 83

12 Crafts N. The productivity slowdown: Is it the ‘new normal’? *Oxford Review of Economic Policy*, 2018, 34(3): 443–460; Gordon R. *The Rise and Fall of American Growth: The U.S. Standard of Living Since the Civil War* (Princeton University Press 2016)

13 Vladimir Lenin, Report on the Work of the Council of People’s Commissars. December 22, 1920. Source: V. I. Lenin, *Collected Works* (Moscow: Progress Publishers, 1964), Vol. XXXI, pp. 513–518.

could say that the digital economy is market power plus the digitalization of the whole world.

This story of interlinked digitalization and globalization are important elements of a new mythology of the extractive or 'predatory' capitalism as Mariana Mazzucato¹⁴ has neatly put it. In her book on 'making and taking' in the global economy, she emphasizes the importance of storytelling and naming for defining actual economic policy. She notices that "[t]he confused and misleading approach to the concept of value that is currently dominating economics" is generating some paradoxical government policies – for instance, incentivizing unproductive activities like advertising that constitutes the main source of profits for the Internet platforms but not the activities that is of most importance for societies and cohesive economic development.¹⁵ One of the key consequences of this confused and misleading approach to understanding value creation and allocation, according to Mazzucato, is a government's failure to address an apparent connection between the digital monopolies and falling incomes of the global population. She highlights this connection through privatization of data in the sole interest of the corporate giants' profit maximization, that in its turn produces "a new form of inequality – the skewed access to the profits generated from big data".¹⁶

The concepts are important, and we have to keep in mind that with the advance of the digital economy and a number of new phenomena accompanying its development there would be more and more attempts to reframe the discourse in economics and law in the interest of the main beneficiaries of the new economic order. The UN Digital Economy Report emphasizes that "lobbying in domestic and international policy-making circles" is an important mechanism for global digital platforms to consolidate their competitive positions.¹⁷ Some narratives that are fed to the regulators all around the world can actually be intentionally confusing and hide the real meaning of things. Like a famous motto "Competition is just one click away"¹⁸ produced and promoted by Google in defense of abusive conduct accusations. Indeed, "a Google search for "one click away" produces over 9.5 million results, almost as many as "In God we Trust," slightly more than "girls just wanna have fun," and more than 50 times more than "God Save America", – calculated Eric Clemons, Professor of Operations Information and Decisions at Wharton Business School.¹⁹

"If names be not correct, language is not in accordance with the truth of things. If language be not in accordance with the truth of things, affairs cannot be carried on to success. When affairs cannot be carried on to success, proprieties and music will not flourish. When proprieties and music do not flourish, punishments will not be properly

14 Mazzucato M. *The Value of Everything. Making and Taking in the Global Economy* (Penguin Books, 2019)

15 Ibid. P. 221

16 Ibid.

17 The Digital Economy Report 2019, UNCTAD, P. 84

18 Google's Approach to Competition, Google's Public Policy Blog, May 8, 2009, <https://publicpolicy.googleblog.com/2009/05/googles-approach-to-competition.html>

19 Clemons E. One Click Away? Maybe and Maybe Not, Huffington Post, 08.16.2011, https://www.huffpost.com/entry/google-one-click-away_b_928009

awarded. When punishments are not properly awarded, the people do not know how to move hand or foot»,²⁰ – Confucius warns us in his Analects.

As not much has yet been done to help to change the current trajectory of the digital economy development leading to an ever-increasing market power of the digital platforms and soaring inequality, it is probably time to ask ourselves the question Confucius asked his students – if we indeed speak “in accordance with the truth of things”.

1.1.2. A Mechanistic Trap of Modern Competition Law

What is the actual meaning of the digital economy as a social phenomenon? Is this a new quality of the economic system? A real technological breakthrough? Or rather a new way to sell the old neoliberal vision of the global economy to the general public and policy makers to loosen regulation and allow monopolies to avoid proper checks and balances on their market power, just another marketing trick?

Evgeny Morozov sees the pervasive enthusiasm about the digital economy among the global business and expert leaders as another attempt to “make the idea of capitalism more morally acceptable”.²¹ He records how “capitalist thinkers still look to Silicon Valley and its culture with a glimmer of hope” as the digital economy “occupies a prominent role on the horizon of the Western capitalist imaginary” and offers “a promising field for regenerative mythologies”.²²

This ‘capitalist imaginary’ could be not a harmless thing. For instance, Mariana Mazzucato mentions that “in the absence of strong, transnational, countervailing regulatory forces, firms that first establish market control in the digital economy reap extraordinary rewards”.²³ Why would these “strong, transnational, countervailing regulatory forces” be still missing after so many years of debate about the growing inequality and disbalances in the world economy?

The UN Digital Economy Report reminds us that “technology is not deterministic” – it is totally up to governments and other stakeholders to “shape the digital economy” by defining the rules of the game.²⁴ So, it becomes imperative for governments all around the world to define these rules according to the nature of things belonging to the digital era. Ideally, if these rules could form a holistic vision for tomorrow’s society beneficial for all.

Ronald Dworkin has suggested that the legal system constitutes what is designed “to share the sense of purpose of the [legal] enterprise”, which is realized in society by all its members as inherently equal.²⁵ Without this framework of solidarity and common

20 James Legge, The Analects of Confucius, Chapter 14, <https://ebooks.adelaide.edu.au/c/confucius/c748a/complete.html>

21 Morozov E., Digital Socialism? The Calculation Debate in the Age of Big Data, New Left Review, 116/117, March-June, 2019, <https://newleftreview.org/issues/11116/articles/evgeny-morozov-digital-socialism>

22 Ibid.

23 Mazzucato M. The Value of Everything. Making and Taking in the Global Economy (Penguin Books, 2019), P. 220

24 The Digital Economy Report 2019, UNCTAD, P. 123

25 Dworkin R. Justice for Hedgehogs. Harvard University Press, 2011. P. 353-354.

sense of purpose, law as the mechanism for governing social development loses all its meaning.

Michael Agarkov, a prominent Russian and Soviet legal scholar, who lived through the major socio-economic transition of the early 20th century, noted that at the start of the 20th century “an integral world outlook had already ceased to exist, and science had to turn to the key issues of civil law, verify old truths, get rid of the obsolete and formulate anew its own basic premises”.²⁶ This search for “integral world outlook” is also clear to the present-day policy makers irrespective of the country where they work when they deal with the new phenomena of the digital economy.

At the same time, many regulatory attempts that we can see in the sphere of the digital economy are quite often fit into the mechanistic tradition in understanding law, a relatively simple model based on classification and linear logic. Legislators across the world are overwhelmed with heated debates over big data, digital platforms, social networks and AI – but are developing fragmented regulatory regimes for each of these phenomena without defining an integral vision of a digital future that is desirable. As a matter of fact, such a legislative work based on the mechanistic legal tradition often leads to a single practical outcome – it helps to retain the status-quo without a real search for answers to the “accursed questions” ranging from distribution of benefits and risks to the sustainable development of the digital economy.

Mechanistic law, through its conversion into a closed system based on certain classifications and linear logic, became a historical fact of the industrial era. Ugo Mattei and Fritjof Capra thoroughly examined this development of the law in the context of industrialization of the past century. According to them, the current outcome of the evolution of law has become its adjustment to the laws of industrial economics: “The mechanistic trap promotes a vision of the legal system as an aggregate of pre-existing legal rules that abstractly bind everybody, both the weak and the strong. This ideology makes plain, law-abiding people think of law almost as if it were a set of instructions to assemble a potentially dangerous appliance”.²⁷ The problem mechanistic application of law, to which the authors of the study refer as “a mechanistic trap” is that it constitutes, in their opinion, one of the gravest problems inherited by modern jurisprudence and legal practice from the industrial era.

Enthusiasm for machines and mechanisms at the time of the 20th century’s industrialization brought about a relevant mindset, which in many ways stripped law of the living spirit and by so doing made law unfitted to effectively meet the key challenge of today – a new stage of industrial revolution. The lower adaptability of law due to its mechanization and transformation into a closed system makes it poorly geared to the present-day challenges of the digital era. The key element of the new economic and social reality – an unprecedentedly high speed and multidirectional nature of the on-going change – was

26 Агарков М.М. Ценность частного права // Агарков М.М. Избранные труды по гражданскому праву в 2-х томах. Т. 1. М. 2002. С. 49. (M.M. Agarkov. Value of Private Law// M.M. Agarkov. Selected works on civil law in 2 volumes. V.1. M.2002. P.49)

27 Carpa F., Mattei U. Op. Cit. P. 125.

well captured by the sociologist Zygmunt Bauman in his book “Fluid Modernity”.

Bauman has described the state of humanity at its current development stage through the properties of liquid:

“Liquids, unlike solids, cannot easily hold their shape. Fluids, so to speak, neither fix space nor bind time. While solids have clear spatial dimensions but neutralize the impact, and thus downgrade the significance, of time (effectively resist its flow or render it irrelevant), fluids do not keep to any shape for long and are constantly ready (and prone) to change it; and so for them it is the flow of time that counts, more than the space they happen to occupy: that space, after all, they fill but ‘for a moment’. In a sense, solids cancel time; for liquids, on the contrary, it is mostly time that matters. When describing solids, one may ignore time altogether; in describing fluids, to leave time out of account would be a grievous mistake. Descriptions of fluids are all snapshots, and they need a date at the bottom of the picture. Fluids travel easily. They ‘flow’, ‘spill’, ‘run out’, ‘splash’, ‘pour over’, ‘leak’, ‘flood’, ‘spray’, ‘drip’, ‘seep’, ‘ooze’; unlike solids, they are not easily stopped – they pass around some obstacles, dissolve some others and bore or soak their way through others still. From the meeting with solids they emerge unscathed, while the solids they have met, if they stay solid, are changed – get moist or drenched. The extraordinary mobility of fluids is what associates them with the idea of ‘lightness’ There are liquids which, cubic inch for cubic inch, are heavier than many solids, but we are inclined nonetheless to visualize them all as lighter, less ‘weighty’ than everything solid. We associate ‘lightness’ or ‘weightlessness’ with mobility and inconstancy: we know from practice that the lighter we travel the easier and faster we move. These are reasons to consider ‘fluidity’ or ‘liquidity’ as fitting metaphors when we wish to grasp the nature of the present, in many ways novel, phase in the history of modernity.”²⁸

What happens when the fluid digital economy encounters the mechanistic laws embedded in a solid form? It just bypasses such objects without any significant impact of the latter thereon. Or should the obstacle be large, such a solid object may block the movement of liquid, but as with any dam it is able to do it only to a certain extent.

It seems extremely important to recognize the fundamental nature of such conflict between our current laws and the liquid economic environment. It is not accidental that over a century ago when criticizing the scholastic realism of legal concepts, German philosopher Oswald Spengler stressed: “The future calls for restructuring of the entire legal thinking on the analogy with advanced physics and advanced maths”.²⁹

Today, humanity is faced with quite existential challenges: the current inequality level multiplied by the on-going changes related to the new industrial revolution bringing up similar questions. Far from being prepared for such challenges, we approach them armed with such means that hinder rather than help to overcome them.

28 Bauman Z.. Fluid Modernity, SPB., 2008, p.8

29 Шпенглер О. Закат Европы. Т. 2. М., 1998. С.85-86. (O. Shpengler. The Decline of the West. V.2,M., pages 85-86)

In a recent report of the World Economy Forum “Our Shared Digital Future”, the following point was singled out from among its key observations: “Our existing institutions are struggling to respond effectively to the pace of change and its distributed nature”.³⁰ The centuries-old legal system has today come up against a challenge to its ability to remain a functional mechanism for regulating and resolving fundamental social issues and controversies.

The modern world, permeated with computer-aided and other new technologies, can no longer be described in the legal parlance based on classical rationalism. In the view of the world taken by today’s law, such categories as “equation” and “necessity” are gradually put on the back burners, whereas the notions of “likelihood”, “probability” and “chance” prove to be increasingly relevant. In fact, law is on the threshold of a systemic shift and transformation: “Today we are told that nature and society have never had and will never have any unalterable laws. Only time will tell how law makers and those who apply law will take this ‘welcome news’ from today’s science, and what conclusions they will draw”.³¹ Forward-looking law-making initiatives in the digital economy are those that make the legal system more flexible and adaptive.

1.1.3. Competition Law for the Fluid Modernity

Going back to the inequality problem and its connection with the new desirable legal framework, one has to start from the fact that the substance of laws is never confined to the natural laws of economic development. Law cannot be devoid of the value dimension, it is not an exact science.

In the digital economy, society may be very different, and as evidenced in practice, its spontaneous development tends to result in growing inequality. Therefore, reconfiguration of legal regulation, its adjustment to the dynamic processes of digitalization does not rule out but, on the contrary, makes a certain *teleological and value choice* inevitable. This means that the policy of law should rely on certain ideals and be developed in unity with economic and social policies.

Just as a hundred years ago, when humanity was faced with the challenges of fast track industrialization, the current stage of industrial revolution also raises its own grave existential questions. Extreme inequality risks launching a spiral of even more radical social stratification, which is capable, in turn, of eliminating the remaining social solidarity in global society.

The problem of ‘rigid’ law, which, according to U. Mattei and F. Carpa, has fallen into a ‘mechanistic trap’ and turned into a rather isolated system of rules, is very acute to all developing countries. A serious approach to reforming the legal system due to the challenges of the digital economy should, in our opinion, first of all suggest a revival of the legal ‘fiber’, a connection of the goals and objectives of economic development with legal

30 Our Shared Digital Future: Building an Inclusive, Trustworthy and Sustainable Digital Society, WEF Report, 2018, <https://www.weforum.org/reports/our-shared-digital-future-building-an-inclusive-trustworthy-and-sustainable-digital-society>

31 Мальцев Г.В. Социальные основания права. М., 2011. С.70. (G.V.Maltsev. Social Grounds for Law. M., 2011, p.70)

regulatory mechanisms. The most critical sphere of economic life at which the revival of the laws should be aimed is the sphere of diffusion of knowledge and information.

According to Thomas Piketty, “over the long period of time, the main force in favor of greater equality has been the diffusion of knowledge and skills”.³² At the same time, Piketty notes that the all-round spread of knowledge and technologies, which promotes greater equality, very often comes under pressure from forces that oppose such spread: “The crucial fact is that no matter how potent a force the diffusion of knowledge and skills may be, especially in promoting convergence between countries, it can nevertheless be thwarted and overwhelmed by powerful forces pushing in the opposite direction, toward greater inequality”.³³

Greater access to knowledge and advanced technologies, especially in developing countries is a powerful tool for overcoming inequality. Therefore, this is the most important goal in adapting legal norms to the needs of the digital economy.

In a recent report prepared by a team of economists led by Dean Baker and Joseph Stiglitz, they analyze the impact of the existing laws of intellectual property on the dynamics of world economic development. The authors conclude: “If the knowledge economy and the economy of ideas is to be a key part of the global economy and if static societies are to be transformed into ‘learning societies’ that are key for growth and development, there is a desperate need to rethink the current regime and to allow for a much less restrictive flow of information and knowledge”.³⁴

The practical implementation of this objective gives a special place to competition laws. The principal drafter of the first antitrust law in the world, the US senator John Sherman who caught the wave of the industrial revolution at the turn of the 20th century with his legislative initiative, was urging the US Congress to pass his bill with the following words: “Sir, now the people of the United States, as well as other countries are feeling the power and the grasp of these combinations, and are demanding of every Legislature and of Congress a remedy for this evil, only grown into huge proportions in recent times. They had monopolies and mortmains of old, but never before such giants as in our day. You must heed their appeal or be ready for the socialist, the communist and the nihilist”.³⁵

From that time flexibility became the key distinctive feature of antitrust regulation in all countries that passed relevant laws, but especially in those where the mechanism of competition law was initially developed to ensure effective performance of the capitalist system. Flexibility and focus on keeping the market competitive and preventing excessive concentration of market power determine the specifics of the mechanism for application of competition laws.

32 Piketty T. Op. cit. I P. 22

33 Ibid.

34 Baker D., Jayadev A., Stiglitz J. Innovation, Intellectual Property, and Development: A Better Set of Approaches for the 21st Century. CEPR Report. 2017. P. 7. URL: <http://cepr.net/publications/reports/innovation-intellectual-property-and-development-a-better-set-of-approaches-for-the-21st-century>

35 Congressional Records. 1896. Vol. 21.

Giuliano Amato, a former prime-minister of Italy and one of the leaders of the European Constitution project, describes this nature as follows:

“Antitrust law was, as we know, invented neither by the technicians of commercial law (though they became its first specialists) nor by economists themselves (though they supplied its most solid cultural background). It was instead desired by politicians and (in Europe) by scholars attentive to the pillars of the democratic systems, who saw it as an answer (if not “the” answer) to a crucial problem for democracy: the emergence from the company or firm, as an expression of the fundamental freedom of individuals, of the opposite phenomenon of private power; a power devoid of legitimation and dangerously capable of infringing not just the economic freedom of other private individuals, but also the balance of public decisions exposed to its domineering strength”.³⁶

The OECD report “Inequality: A Hidden Cost of Market Power” shows the fallacy of the view that competition policy should distance itself from the problem of wealth concentration and distribution.³⁷

From the very first days of antitrust law emerging on the wave of the US industrial revolution in the late 19th century, it was aimed in its core at balancing the capitalist system in order to remove social and economic tensions that were inevitably emerging against the background of dynamic growth and sweeping transformations. According to Joseph Stiglitz: “The changes in our economy and our understandings of the interplay between economics and politics necessitates a broader reach for competition policy than envisaged by the original advocates of antitrust law, and that this is especially so in developing countries and emerging markets”.³⁸ In a similar vein, the UN Digital Economy Report is urging for adapting existing competition law frameworks “to ensure markets remain competitive and contestable in the digital era”.³⁹

Unlike positive regulation aimed at the establishment of fixed rules, competition law is a flexible instrument of responding to problems and “bottlenecks” in economic development. In the context of the new technological paradigm, antitrust regulation should be designed above all to remove barriers to entering new markets and ensure broader access to key technologies and knowledge. It is the revival of law, its greater flexibility, that should be aspired by law-makers in developing countries willing to make their economies competitive in the 21st century.

In confronting growing global instability and inequality, solutions that strengthen the role of humans as actors in the digital economy may be among the most important. Humans should be provided with greater opportunities for self-fulfillment in the context of the growing “power of machines” and the power of those who mostly benefit from

36 Amato G. Antitrust and the Bounds of Power. Oxford, 1997. P. 2.

37 Inequality: A Hidden Cost of Market Power. Ennis, S. et al. OECD, 2017. URL : <http://www.oecd.org/daf/competition/inequality-a-hidden-cost-of-market-power.htm>

38 Stiglitz J. Towards A Broader View of Competition Policy // Roosevelt Institute Working Paper. June 2017. URL: <http://rooseveltinstitute.org/towards-broader-view-competition-policy/>

39 The Digital Economy Report 2019, UNCTAD, P. 137

the digital economy – Internet monopolies. From this point of view, Eleanor Fox quite logically insists that, “[a] vision of human rights that includes human economic welfare, in addition to the neoclassical economic view of aggregate economic welfare, is therefore necessary”.⁴⁰ Stronger legal positions of human beings, new opportunities provided thereto should become the basis for defining new legislative initiatives across the world.

A human-centric approach to the IP rights protection; promotion of open access and data commons regimes; more emphasize on ethical and sustainable development of technologies and digital services – all this can be included into the competition assessment matrix for the sake of more efficient responding to the major challenges of the digital era.

And finally, it is desirable to keep trying to establish an effective global regime for the protection of fair and equitable competition in the digital economy. Today such a global legal framework does not exist. The BRICS countries could make an important and practical contribution to a closer reach to this goal in the interests of sustainable social and economic development for all in the digital era.

1.1.4. Global Nature of Competition Regulation

The end of the Cold War, along with the established Washington consensus that the wealth of nations will result from trade and investment liberalization, privatization and deregulation,⁴¹ changed the perceived nature of the global marketplace and opened doors for new opportunities, including for ones “in the area of competition law.”⁴²

Along with geopolitical changes, another important shift well symbolized by the Internet had a transformative impact on the global marketplace by virtue of new communicative and information technologies. This transformation changed the perception of the global marketplace, allowing some commentators to say that, “the Web-enabled playing field” rendered the world flat.⁴³

The idea of a free and open global market became extremely powerful in the 1990s and spread around the world. The rise of this new perception provided the momentum for institutional and legal changes. As Jon Hanson put it, “In brief, what changed was the meta script,”⁴⁴ which forms the ideas, concepts and conclusions comprising the first and “highest” level of the law”.⁴⁵

“What we may be witnessing is not just the end of the Cold War, <...>, but the end of history as such: that is, the end point of mankind’s ideological evolution and the universal-

40 Fox E., Globalization and Human Rights: Looking Out for the Welfare of the Worst Off, 35 N.Y.U. J. Int’l L. & Pol. 202 (2002)

41 Rainer Geiger, ‘The Development of the World Economy and Competition Law’ in Roger Zach and Andreas Heinmann (eds) *The Development of Competition Law: Global Perspectives* (Edward Elgar 2010) 235, 238

42 Eleanor Fox, ‘Toward World Antitrust and Market Access’ (1997) 91 Am. J. Int’l L. 1

43 Thomas Friedman, *The World Is Flat* 176 (New York, 2005)

44 Jon Hanson and Ronald Chen, ‘The Illusion of Law: The Legitimizing Schemas of Modern Policy and Corporate Law’ (2004) 103 Mich. L. Rev. 4, 10 (hereafter Hanson and Chen, ‘The Illusion of Law’)

45 Ibid, 6

ization of Western liberal democracy as the final form of human government.”⁴⁶ – was famously proclaimed by Francis Fukuyama. This neo-liberal agenda, like Milton Friedman’s assertion that, “the operation of the free market... foster[s] harmony and peace among the people of the world,”⁴⁷ and focus on consumer welfare, triggered a broader question – why is it that competition law calculus does not include consumer welfare of other nations?

It is quite consistent with the faith in a free and open market, which, according to Richard Posner, “works best to achieve the common goals of most people in the world”⁴⁸ to consider the consumer demands as just consumer but not political actors. Chris Noonan insists that, “[t]he process [towards global competition law] should start by building a consensus among states that the long-term interests of all states would be advanced if international competition law had the overall objective of maximizing global consumer welfare.”⁴⁹

But it did not happen. Although the global consumer welfare prescription is based on the ideological paradigm promoted as a part of the liberalization project, but the practical interests of the major states did not allow it to become a normative prescription in the legal framework of the global economy. Neither in the framework of the International Trade Organization in the 1940s, nor in the context of the United Nations in 70s and 80s, nor under the World Trade Organization’s umbrella, the global competition law regime did not play out.

But a direct outcome of those numerous initiatives to establish a global cohesive legal regime for economic competition in the world has led to a particular role for competition law to play. Dissemination of competition regimes around the world and adoption of competition values by most of the world jurisdictions and international organizations have led to a series of effects making competition law an important factor in regulating the global economy distinct from other legal regimes (primarily of ex-ante regulations) also not unified under the international laws but not having such international recognition as competition law. All leading countries recognize the importance of competition and allow for various forms of market intervention to protect competition. Also, the principle of competition protection is central to a whole range of key international agreements. For example, the Agreement on Trade Related Aspects of Intellectual Property Rights within the WTO directly provides for national states to limit the rights of intellectual property in order to protect competition.

Competition law receptive to international cooperation strongly improves the effectiveness of its application. For instance, if BRICS countries or those of other blocs of emerg

46 Francis Fukuyama, ‘The End of History?’ *The National Interest* (Summer 1989) 3 (hereafter Fukuyama, ‘The End of History?’)

47 *Free to Choose: Vol. 1: The Power of the Market: The Pencil Story* (1980), <http://www.freetochoose.tv/>

48 Richard Posner, *Law and Economics is Moral in Adam Smith and the Philosophy of Law and Economics* 170 (ed. Robin Paul Malloy & Jerry Evensky, Kluwer Academic Publishers, 1994)

49 Chris Noonan, *The Emerging Principles of International Competition Law* 561 (Oxford University Press, 2008)

ing economies take coordinated decisions on global monopolists, such decisions will be impossible to ignore.

These special features add more regulatory impact on global economic processes to countries that otherwise carry little weight in the world economy and are unable for this reason to set effective global market rules. Considering almost global acceptance by the major jurisdictions of the value of competitive process, competition law makes it possible for even small economies to influence the global processes of economic life in the new technological paradigm if they impose some nuanced restrictions on the global digital players in line with competition law analysis.

The range of tools for competition protection is quite broad and can be adapted to solve key objectives of fixing “bottlenecks” of the global digital economy, namely, ensuring access to the key elements of global infrastructure of the digital economy – above all to data and knowledge. It is apt to wonder would it be much a stretch to say that competition law is a relatively unique mechanism of the regulatory impact of small and medium-sized economies on global economic processes unfolding in the digital economy.

Evolving BRICS cooperation in the sphere of competition law and policy can provide a new hope for the global economy. This cooperation is aimed to embrace the peculiarities of globalization in its current phase. What is common for the BRICS jurisdictions is that they are all in search of a solution allowing to shortcut the developmental track. This experimentalist energy and creativity being the main characteristics of the group are extremely important for the current phase of global economic development. It is not only an institutional structure of the global order that is in transition but also the very nature of the global marketplace. The key focus of the new global competition policy should be the facilitation of openness among global networks and value chains through the reduction of the manipulative and exclusionary potential of digital platforms. The BRICS cooperation has an important role in making the global marketplace both fairer and more equal as it has an ability to promote a form of competition encouraging a broader dissemination of knowledge and advanced technologies that would cover the largest percentage of the world population, while eliminating barriers imposed on the global flows of innovation by both the global technological monopolies and cartel-like technological joint ventures burgeoning within their “walled gardens” at the expense of the excluded consumers and entrepreneurs around the world.

In the following chapters of this report, we explore in more details how the digital economy challenges can be converted into policy solutions and actual steps in improving competition law practice and legislation in the BRICS countries. The UN Digital Economy Report concludes that “there is a growing need for competition policy to be set and enforced within regional or global frameworks”⁵⁰. We hope that the timely initiative of the BRICS countries to further advance cooperation in the competition law and policy domain can address this need.

50 The Digital Economy Report 2019, UNCTAD, P. 138

1.1.5. The emergence of digital financial capitalism

One of the crucial hypotheses of this report is that financialization lays at the center of the shift toward digital or informational capitalism: the term denotes the focus of modern capitalism on the predominance of the shareholder-value perspective, according to which firms and corporations are largely accountable for maximizing the short-term benefits of their shareholders through IPOs, collective ownership, stock buybacks, and other financial instruments. To accomplish this, starting in the 1980s, firms reversed from the allocation regime of 'retain and reinvest', where companies invested their revenues in job-creating innovations in organization and technology, to a regime of 'downsize and redistribute' that is focused on the allocation of revenues to shareholders. Lazonick traces these developments in terms of a shift from an 'old-economy business model' (OEBM) to 'new-economy business model' (NEBM)⁵¹. This shift, according to Lazonick, took place at different levels and on various dimensions, including models and practices of technological innovation, corporate governance, and capital investment, particularly in the high-tech world of Silicon Valley.

In brief outline, the adoption of open-systems standards by major players of the computer industry led to the weakening or abandonment of internal R&D within major corporations in favor of patenting, cross-licensing, outsourcing, and the takeover of start-ups. Technically, this was accompanied by the design and development of modular components that were manufactured by offshore companies and vertically integrated in niche markets. Financially, the shift was made possible through the rise of organized venture capital, cushioned by large investment from large retirement and pension funds (see Table 1.1.). These had important implications on the nature of work and led to important changes in the patterns of employment in these large corporations from the late 1970s, a process that accentuated with the development of personal computing and the Internet in the 1980s and 1990s.

Table 1.1. Old Economy Business Model vs New Economy Business Model

	OEBM	NEBM
Strategy, product	Growth by building on internal capabilities; business expansion into new product markets based on related technologies; geographic expansion to access national product markets.	New firm entry into specialized markets; sale of branded components to system integrators; accumulation of new capabilities by acquiring young technology firms.
Strategy, process	Corporate R&D labs; development and patenting of proprietary technologies; vertical integration of the value chain, at home and abroad.	Cross-licensing of technology based on open systems; vertical specialization of the value chain; outsourcing and offshoring.
Finance	Venture finance from personal savings, family, and business associates; NYSE listing; payment of steady dividends; growth finance from retentions leveraged with bond issues.	Organized venture capital; initial public offering on NASDAQ; low or no dividends; growth finance from retentions plus stock as acquisition currency; stock repurchases to support stock price.

51 W. Lazonick, *The New Economy Business Model and the Crisis of U.S. Capitalism*, (2009) 4(2) *Capitalism and Society*, Article 4.

	OEPM	NEPM
Organization	Secure employment: career with one company; salaried and hourly employees; unions; defined-benefit pensions; employer-funded medical insurance in employment and retirement.	Insecure employment: interfirm mobility of labour; broad-based stock options; non-union; defined-contribution pensions; employee bears greater burden of medical insurance.

The emergence of the Fintech industry provides an illustration of the complex interplay between the processes of datafication and financialization and the emergence of specific forms of digital competition that may look different from the competitive process in the 'Old Economy'.

1.1.6. Case study: Fintech and banks in the Digital era

'Fintech' became a buzzword several years ago with the emergence of a large number of start-ups offering innovative financial services and promising to re-shape the future of finance.

Fintech is an abbreviation for Financial Technologies and refers to organizations where 'financial services are delivered through a better experience using digital technologies to reduce costs, increase revenue and remove friction'.⁵² The business models based entirely on digital products set them apart from traditional banks whose services might be similar but originally lacked a digital component.⁵³

There are certain difficulties in defining the exact scope of Fintech. However, there are easily identifiable product clusters, such as payments, lending/crowdfunding, deposits, financial planning, trading and investments, insurance, digital currency, wealth and asset management, enabling technologies and infrastructures.⁵⁴ This reflects the gradual diffusion of Fintech into areas that have been a domain of traditional banking institutions (such as lending), as well as the emergence of completely new areas such as the trading of digital assets.

Over recent years, investment in Fintech has been increasing exponentially and reached \$111.8 billion in 2018⁵⁵ (compared with \$19.9 billion in 2014),⁵⁶ more than doubling during 2018 alone. Though the information on the overall market volumes of Fintech activities is scant, the indicators related to specific markets show its significant growth. Thus, the volume of marketplace lending has increased from

52 Jim Marous, 'The Future of Banking: Fintech or Techfin?' *Forbes* (27 August 2018) <https://www.forbes.com/sites/jimmarous/2018/08/27/future-of-banking-fintech-or-techfin-technology/#23c7024a5f2d> accessed 19 January 2019.

53 Rory Van Loo, 'Making Innovation More Competitive: The Case of Fintech' (2018) 65:1 *UCLA Law Review* 232, 239.

54 *ibid* 11; IOSCO (2017) 'Research Report on Financial Technologies (FinTech)' 4, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD554.pdf> accessed 31 March 2019.

55 KPMG, 'The Pulse of Fintech 2018: Biannual Global Analysis of Investment in Fintech' (13 February 2019) <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/02/the-pulse-of-fintech-2018.pdf> accessed 31 March 2019.

56 '2018 is Already a Record Year for Global FinTech Investment' (11 July 2018) <https://fintech.global/2018-is-already-a-record-year-for-global-fintech-investment/> accessed 31 March 2019.

less than \$100 billion in 2015 to \$300 billion in 2018.⁵⁷ The Cambridge Center for Alternative Finance estimated the total volume of online alternative finance in the EU to be EUR 7 671 million as of 2016, which is 41 % higher than in 2015.⁵⁸

The Fintech adoption level has been also growing steadily. Thus, the average percentage of digitally active consumers using Fintech services reached 33% in 2017, compared to 16% in 2015.⁵⁹ The Fintech adoption level is considerably higher across emerging markets (46%).⁶⁰ This can be explained by the high level of tech literacy, internet and mobile penetration on the one hand, and the vast proportion of financially underserved population on the other hand.⁶¹ The examples of China and India with the highest rates of Fintech adoption⁶² demonstrate the main strength and weakness of Fintech. Where there is a vast proportion of unbanked population, Fintech companies are able to gain momentum and scale up quickly (leading to the potential rise of large companies like Ant Financial).⁶³ Meanwhile, in the well-served markets, like Europe, Fintech companies are focusing on improving user experience by complementing the existing offerings of traditional financial institutions⁶⁴ and often struggle to build scale on their own.⁶⁵

At the outset, there were two possible ways for the development of Fintech. The first one was to challenge incumbent financial institutions and to eat away their market shares (*disruptive path*). The initial ambition of Fintech was nothing less than 'a democratic revolution for all who use financial services'.⁶⁶ For example, alternative online banking first emerged with an aspiration to replace traditional

57 Juan J. Cortina and Sergio L. Schmukler, 'The Fintech Revolution: A Threat to Global Banking?' (World Bank documents) <http://documents.worldbank.org/curated/en/516561523035869085/pdf/125038-REVISED-A-Threat-to-Global-Banking-6-April-2018.pdf> accessed 30 March 2019.

58 EU Directorate General for Internal Policies, A. Fraile Carmona and al., 'Competition issues in the Area of Financial Technology (FinTech)' (July 2018), 22, [http://www.europarl.europa.eu/RegData/etudes/STUD/2018/619027/IPOL_STU\(2018\)619027_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/619027/IPOL_STU(2018)619027_EN.pdf) accessed 25 March 2019.

59 'EY FinTech Adoption Index 2017' [https://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/\\$FILE/ey-fintech-adoption-index-2017.pdf](https://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/$FILE/ey-fintech-adoption-index-2017.pdf) accessed 07 April 2019. EY survey compared across 20 markets including Australia, Belgium and Luxembourg, Brazil, Canada, China, France, Germany, Hong Kong, India, Ireland, Japan, Mexico, the Netherlands, Singapore, South Africa, South Korea, Spain, Switzerland, the UK, and the US.

60 *ibid.*, 7.

61 *ibid.*; A. Fraile Carmona and al. (n 58) 27.

62 'EY FinTech Adoption Index 2017' (n 59) 12.

63 In China alone, Alipay (the mobile payment division of Ant Financial) dominates the country's \$5.5 trillion mobile payment sector (54% of the total market share) – Lerong Lu, 'How a Little Ant Challenges Giant Banks? The Rise of Ant Financial (Alipay)'s Fintech Empire and Relevant Regulatory Concerns' [2018] I.C.C.R.L. Issue 1 18.

64 A. Fraile Carmona and al. (n 58) 46.

65 CapGemini and LinkedIn in collaboration with Efma, 'World Fintech Report 2018' 10 <https://www.capgemini.com/news/capgemini-world-fintech-report-2018-highlights-symbiotic-collaboration-as-key-to-future-financial-services-success/?FinancialBrand> accessed 31 March 2019.

66 Mark Carney, Governor of the Bank of England, 'Enabling the FinTech transformation: Revolution, Restoration, or Reformation?' (Speech at the Lord Mayor's Banquet for Bankers and Merchants of the City of London at the Mansion House, London, 16 June 2016) <https://www.bankofengland.co.uk/-/media/boe/files/speech/2016/enabling-the-fintech-transformation-revolution-restoration-or-reformation> accessed 24 March 2019.

banks.⁶⁷ But except for some underserved sectors, most Fintech companies have shifted to building partnerships with incumbent banks as they struggled with scale and customer adoption (*collaborative path*).⁶⁸ Likewise, traditional financial institutions have noticed the opportunities arising from the emergence of new technologies and, first threatened by potential competition from Fintech start-ups, quickly switched to use them as a 'supermarket' for capabilities with the view to integrating them into the traditional banks' ecosystem.⁶⁹ Partnerships between traditional financial institutions and Fintech is becoming more and more common and take various forms.⁷⁰

In order to understand the competition implication of various business strategies adopted by traditional banks and Fintech, this study considers both *intra-platform* and *inter-platform competition*. Many experts have emphasised the ongoing transitions of the financial industry from product to platform competition, with the rise of financial platforms set to only accelerate in the future.⁷¹ The World Economic Forum identifies platform rising among eight disruptive forces that have the potential to shift the competitive landscape of the financial ecosystem with the power being transferred from financial services providers to the owner of the customer

67 Rory Van Loo (n 53) 241; Bryan Yurcan, 'How Moven Went From 'Breaking Banks' to Breaking Bread With Them' AM. BANKER (02 September 2016) <https://www.americanbanker.com/news/how-moven-went-from-breaking-banks-to-breaking-bread-with-them> accessed 30 March 2019.

68 World Economic Forum Report, Beyond Fintech: A Pragmatic Assessment Of Disruptive Potential In Financial Services (August 2017) 12; Rory Van Loo (n 53) 234; Alistair Milne, 'Competition Policy and the Financial Technology Revolution in Banking' (2016) DigiWorld Economic Journal 5, http://www.idate.org/en/Digiworld-store/No-103-Digital-Innovation-Finance-Transformation_1093.html accessed 10 February 2019.

69 World Economic Forum Report, Beyond Fintech (n 68) 13; Brett Johnson, 'Fintech: Friend or Foe?' NJBiz (3 April 2017) <https://njbiz.com/welcome-ad/?retUrl=/friend-or-foe-some-banks-see-growing-fintech-industry-as-an-asset-while-others-see-it-as-unwanted-competition/> accessed 10 April 2019; Ioannis Lianos, 'Blockchain Competition: Gaining Competitive Advantage in the Digital Economy – Competition Law Implications' Philipp Hacker and Ioannis Lianos (eds) Regulating Blockchain: Techno-Social and Legal Challenges (Oxford University Press 2019) 371.

70 For example, Alessandro Hatami has identified four models of the collaboration between traditional banks and Fintech: channel model when the bank helps the Fintech to sell its products to the bank's customers (e.g. the partnership between JPMorgan and OnDeck); supplier model when the bank engages with the Fintech as if it were a supplier (e.g. the collaboration between Bud and HSBC's First Direct); satellite model where the bank acquires the Fintech start-up, but leaves it relatively independent (acquisition of Nickel by BNP Paribas), and classical merger model where the acquired Fintech is integrated and rebranded within the bank (the acquisition of Final by Goldman Sachs' consumer bank Marcus), see Alessandro Hatami, 'Bank & FinTech Collaboration Models' (14 August 2018) https://medium.com/@a_hatami/bank-fintech-collaborations-how-big-banks-plan-to-stand-up-to-the-big-tech-challenge-24eea57db095 accessed 20 May 2019.

71 World Economic Forum Report, Beyond Fintech (n 68); KPMG, 'The rise of digital platforms in financial services', <https://assets.kpmg/content/dam/kpmg/xx/pdf/2018/02/kpmg-rise-of-digital-platforms.pdf> accessed 20 January 2019; Earnst&Young Report, Imran Gulamhuseinwala, How banks could join the platform economy (July, 2017) at <https://www.ey.com/gl/en/industries/financial-services/fso-insights-how-banks-could-join-the-platform-economy> accessed 20 January 2019; The Future of the Financial Services: the Banks as a Platform, (17 April 2017) <https://www.realdolmen.com/en/blog/future-of-financial-services-bank-as-a-platform> accessed 20 January 2019; Mine Kansu & Geoffrey Parker, Transitioning from Services to Platforms: The Financial Services Industry (9 August 2018) MIT Initiative on the Digital Economy, 3, https://www.db.com/newsroom_news/Whitepaper_MIT_financial_services_platform.pdf.

interface.⁷² The platform's goal would be to develop a financial services ecosystem with different components developed by different firms, then combined and sold via the common customer interface. This reflects the digital trend of commoditization of the banking services replacing the universal banking model,⁷³ where the various sectors of financial activities are unbundled and specialized suppliers deliver financial products as commodities.⁷⁴

In these circumstances, the *intra-platform competition* (i.e. competition between participants of the platform to capture a greater share of the value generated by the platform) becomes of particular importance.⁷⁵ The 'eco-system manager' or 'platform architect' sets the rules, controls the underlying platform technology, and determines who can participate in the platform.⁷⁶ This allows him to capture the lion's share of the whole profit. From the outset, the traditional banks are in a better position to gain the architectural advantage within the platform business model compared to Fintech. Among the primary reasons are high entry barriers in the industry,⁷⁷ network effects,⁷⁸ strong brands and trust-based relationships of incumbents and customers reluctance to switch to Fintech providers.⁷⁹ A significant entry barrier is the traditional banks' hold on the financial infrastructure, most notably the access to customer accounts.⁸⁰ These industry-specific factors might have driven Fintech to take the collaborative path, instead of unleashing the full disruptive potential of new technologies.

This lack of competition between incumbents and new entrants has presented a continuous concern for regulators, who considered Fintech as an important source of innovation and competition in the industry.⁸¹ Consumers also can benefit from increased competition between banks and Fintech companies as it can lead to disintermediation of existing value chains, lowering prices of financial services,⁸² improving customers experience and promoting financial inclusion in underserved markets.⁸³ To bring about the full potential of financial innovation, Fintech companies need to scale up effectively to compete with incumbents. This explains why

72 World Economic Forum Report, Beyond Fintech (n 68) 14.

73 Ioannis Lianos (n 69) 371.

74 *ibid*, World Economic Forum Report, Beyond Fintech (n 68) 19; Christoffer Hernæs, 'What Facebook's European Payment License Could Mean for Banks' TechCrunch (12 January 2017) <https://techcrunch.com/2017/01/12/what-facebooks-european-payment-license-could-mean-for-banks/> accessed 23 May 2019.

75 See, Chapter 4 of this Report.

76 Mine Kansu & Geoffrey Parker, Transitioning from Services to Platforms: The Financial Services Industry (9 August 2018) MIT Initiative on the Digital Economy, 6, https://www.db.com/newsroom_news/Whitepaper_MIT_financial_services_platform.pdf.

77 Rory Van Loo (n 53) 242.

78 Alistair Milne (n 68) 6-7.

79 World Economic Forum Report, Beyond Fintech (n 68) 13; Rory Van Loo (n 53) 244-245.

80 Rory Van Loo (n 53) 242.

81 Ioannis Lianos (n 69) 372.

82 A. Fraile Carmona and al. (n 8) 17; Rory Van Loo (n 53) 252.

83 A. Fraile Carmona and al. (n 58) 46.

policy makers and competition authorities around the globe consider a level playing field for Fintech companies and traditional financial institutions as a *sine qua non* of getting the best value for customers from Fintech.⁸⁴

In search for this level playing field, the regulators first turned their eye to the main source of the banks' architectural advantage – the customer accounts. Blocking or limiting access to customer accounts (even given the customer's explicit consent) significantly impedes the Fintech firm's ability to provide innovative services. For instance, mobile payments or aggregation of banking products⁸⁵ require linkage to a bank transactions account. The bank holding all the account information and technical access to the account can leverage this to keep potential competitors away from these lucrative markets. Denying the Fintech's access to customer accounts as crucial gateways of traditional banking activities increases the probability of exclusionary conduct on the part of banks and gives them the upper hand in the fight for architectural advantage.⁸⁶ As the COO of Fidor Bank put it: '[B]ank accounts are the last mile. Finance has had a hold on that, and will continue to leverage it'.⁸⁷

The recent EU and UK regulatory initiatives are intended to provide certain categories of Fintech companies with access to banking infrastructure. Thus, the second EU Payments Service Directive (PSD2), approved by the European parliament in 2015, obliges EU banks to provide open-APIs⁸⁸ for payment services.⁸⁹ The directive requires banks to provide third party providers (TPP) access to: (i) *account information* which allows a payment service user to have an overview of their financial situation at any time; and to (ii) *payment initiation services* which allow consumers to pay via simple credit transfer for their online purchases via TTP software.⁹⁰ The similar Open Banking initiative in the UK followed the Competition and Markets Authority investigation into retail banking⁹¹ which found that the incumbent banks

84 Joaquín Maudos and Xavier Vives, Competition policy in banking in the European Union (January 2019, upcoming in the Review of Industrial Organisation) 25 <<https://blog.iese.edu/xvives/files/2019/01/Maudos-Vives-January-2019-1.pdf> accessed 27 February 2019.

85 Aggregation enables users to aggregate and compare all account information from different providers on a single platform.

86 A. Fraile Carmona and al. (n 58) 14.

87 Daniel Cawrey, 'Fidor Exec: Banks Can't Avoid Competition from Cryptocurrencies' (5 June 2014) <https://www.coindesk.com/fidor-banks-cant-avoid-competition-cryptocurrencies> accessed 02 April 2019.

88 API (Application Programming Interface) is a method of standardised data exchange that allows easy and seamless communications between various components and devices. Its objective is to allow other developers to build on top of someone's software.

89 Directive 2015/2366/EU of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, <https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32015L2366> accessed 01 April 2019.

90 *ibid.*

91 Competition and Markets Authority, 'CMA, Retail Banking Market Investigation' (2016) Final Report, <https://assets.publishing.service.gov.uk/media/57ac9667e5274a0f6c00007a/retail-banking-market-investigation-full-final-report.pdf> accessed 27 February 2019.

‘d[id] not have to compete hard enough to win and retain customers’ compared to new entrants.⁹² It required the nine biggest UK banks⁹³ to allow licensed start-ups direct access to their data including detailed account information.⁹⁴ By the end of 2018 there were already more than 80 third party providers registered with the Financial Conduct Authority to provide either payment initiation or account information services and up to 17.5 million API calls per month.⁹⁵ However, the implementation of the PSD2 in EU has taken more time. By September 2019 it should finally land as the banks are expected to have implemented dedicated APIs for third-party providers in compliance with the European Banking Authority’s Regulatory Technical Standards (‘RTS’).⁹⁶ Some surveys indicate though that the European banks generally have failed to prepare for this deadline with the RTS compliance rate slightly over 50% on average.⁹⁷

PSD2 and Open Banking are largely beneficial for intra-platform competition, as they enable Fintech providers ‘to engage directly with and add value to customers’⁹⁸ without relying on the banks’ consent to grant them access to customers’ current accounts. This removes an important bottleneck in the financial services value chain. Access regulations have potential to further disintermediate the financial sector through unbundling the financial services value chain and thus promoting competition in these unbundled segments.⁹⁹ On the other hand, these initiatives may nudge banks to move quicker to the platform model where the services providers bring together various customer groups into one ecosystem managed by the bank. This mostly depends on the strategy chosen by banks – whether they consider the open APIs requirement as an impediment to their existing business model or as a potential ‘extension to the bank-as-a-platform’ concept¹⁰⁰ and an opportunity to capture an even bigger share of the customers market.¹⁰¹

cessed 20 May 2019.

92 See Competition and Market Authority Press Release ‘CMA Paves the Way for Open Banking Revolution’ (9 August 2016) <https://www.gov.uk/government/news/cma-paves-the-way-for-open-banking-revolution> accessed 02 April 2019.

93 HSBC, Barclays, RBS, Santander, Bank of Ireland, Allied Irish Bank, Danske Bank, Lloyds and Nationwide.

94 *ibid.*

95 Scott Carey, ‘Open Banking One Year On: Where Are We?’ ComputerWorldUK (14 January 2019) <https://www.computer-worlduk.com/data/open-banking-one-year-on-where-are-we-3690264/#> accessed 01 April 2019.

96 Technical Standards on the EBA Register under PSD2 (29 November 2018) <https://eba.europa.eu/regulation-and-policy/payment-services-and-electronic-money/technical-standards-on-the-eba-register-under-psd2> accessed 23 May 2019.

97 As of March 2019 – see ‘Open Banking: Why the Revolution Is Behind Schedule’ FinTech Futures (2 May 2019) <https://www.bankingtech.com/2019/05/open-banking-why-the-revolution-is-behind-schedule/> accessed 23 May 2019.

98 ‘The Second Payment Services Directive: a Game-Changing Regulation’ (16 January 2018) <https://www.openaccessgovernment.org/second-payment-services-directive-game-changing-regulation/41185/> accessed 01 April 2019.

99 Ioannis Lianos (n 69) 375.

100 Amber Leigh Turner, ‘The future of finance: Banking as a platform’ (14 September 2016) <https://thenextweb.com/worldofbanking/2016/09/14/the-future-of-finance-banking-as-a-platform/> accessed 20 April 2019.

101 Ernst and Young, The revised Payment Services Directive (PSD2) What you need to know (2018) [https://www.ey.com/Publication/vwLUAssets/Regulatory_agenda_updates_PSDII_Luxembourg/\\$FILE/Regulatory%20agenda%20updates_PSDII_Lux.pdf](https://www.ey.com/Publication/vwLUAssets/Regulatory_agenda_updates_PSDII_Luxembourg/$FILE/Regulatory%20agenda%20updates_PSDII_Lux.pdf) accessed 02 April 2019; Scott Carey (n 95).

Having said that, the access regulations might have inadvertent implications for *inter-platform competition*, i.e. the competition for becoming the industry dominant platform or the “industry architect”.¹⁰² Thus, Miguel de la Mano and Jorge Padilla point out in their paper that PSD2 is asymmetrical, as it enables the flow of crucial data only from banks to TTPs, but not the other way round. This can potentially give unfair advantage to Big Tech companies which can benefit in a direct or indirect way from the access to this raw data without having to invest in the relevant IT infrastructure.¹⁰³ Therefore, these regulations may shift the advantage in the industry architectural fight from the Big Banks to the Big Techs.

To grasp the full implication of the last argument, one needs to delve carefully into analysis of the inter-platform competition and the role played by Big Tech companies in financial markets. Big Tech are defined as global technology-based firms with widespread adoption across geographies.¹⁰⁴ These include Google, Apple, Facebook, and Amazon (GAFA) in the Western hemisphere and Baidu, Alibaba and Tencent (BAT) in Asia. Many Big Tech companies have already ventured into financial services, starting with payments and lending related to their principal platform offerings.¹⁰⁵

Among GAFA, Amazon is well-known for its attempts to unbundle the financial value chain and continuous investments in multiple areas of financing (see Figure 1.4.).¹⁰⁶ Amazon’s broader strategy involves ‘building a low friction payments service to attract customers online’¹⁰⁷ to ultimately increase participation (both from buyers and sellers) on its platform. Since the launch of its first payment service “Pay with Amazon” in 2007, Amazon has ventured into mobile payments and digital wallets (Amazon Pay and its predecessors), cash deposits (Amazon Cash, launched in 2017), B2B lending (Amazon Lending, launched in 2011), B2C lending (Amazon Prime credit cards, the first card launched in 2015), insurance (Amazon Protect, launched in 2016).¹⁰⁸ Amazon plans to further expand into checking accounts,¹⁰⁹ mortgage lending,¹¹⁰ home and health insurance.¹¹¹ Interestingly, each of its fi-

102 See Ioannis Lianos (n 69) 361-362.

103 Miguel de la Mano and Jorge Padilla, ‘Big Tech Banking’ (2018) 11 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3294723 accessed 27 March 2019.

104 CapGemini, ‘World Fintech Report 2018’ (n 65) 61.

105 CapGemini, ‘World Fintech Report 2018’ (n 65) 61-63.

106 ‘Everything You Need To Know About What Amazon Is Doing In Financial Services’, CBInsights <https://www.cbinsights.com/research/report/amazon-across-financial-services-fintech/> accessed 20 May 2019.

107 *ibid.*

108 *ibid.*

109 Emily Glazer, Liz Hoffman and Laura Stevens, ‘Next Up for Amazon: Checking Accounts’ The Wall Street Journal (New York City, 5 March 2018) <https://www.wsj.com/articles/are-you-ready-for-an-amazon-branded-checking-account-1520251200> accessed 20 May 2019.

110 Brad Finkelstein, ‘Will Amazon Create Prime Competition for Mortgage Lenders?’ National Mortgage News (New York City, 6 March 2019) <https://www.nationalmortgagenews.com/list/will-amazon-create-prime-competition-for-mortgage-lenders> accessed 20 May 2019.

111 ‘Everything You Need To Know About What Amazon Is Doing In Financial Services’ (n 106).

financial propositions leverages the network effects and Amazon's vast consumer base in other markets. For instance, home insurance might be offered in conjunction with its home devices, such as Alexa; Amazon Prime cards first leveraged the strong presence of Amazon in e-commerce (Amazon Prime programme) and then expanded beyond e-marketplace as well as to non-Prime customers (Amazon Visa Credit Card).¹¹² In general, the long history of Amazon's expansion into finance demonstrates that it is serious about gaining a hold of the financial market and transforming it into a completely new digital experience (Figure 1.1.).

Figure 1.1. Amazon and the unbundling of the bank



Source: CBInsights.

Another salient example of the successful foray into financial markets is the Chinese tech giant Tencent. Its most significant innovation was coupling mobile payments with the online messaging and social media platform, WeChat.¹¹³ Due to a largely unbanked population in China, Tencent's innovations like WeChat Pay and QQ Wallet quickly gained momentum with WeChat payments having risen to \$1.2 trillion in 2016 from less than \$11.6 billion in 2012¹¹⁴. To further engage users in its

112 ibid.

113 'As Regulators Circle, China's Fintech Giants Put the Emphasis on Tech' The Economist (London, 13 September 2018) <https://www.economist.com/finance-and-economics/2018/09/13/as-regulators-circle-chinas-fintech-giants-put-the-emphasis-on-tech> accessed 2 May 2019.

114 Tanaya Macheel, 'WeChat shows messaging is the future of financial services 'platforms'' (9 January 2018) <https://tearsheet.co/future-of-investing/wechat-shows-messaging-is-the-future-of-financial-services-platforms/> accessed 20 May 2019.

ecosystem, Tencent launched wealth management tools (Li Cai Tong and Ling Qian Tong, in 2014), a B2C lending platform (WeiLiDai, 2015) and a B2B lending platform (Wei Ye Dai, 2017), an insurance agency platform (WeSure, 2017), and two online pension funds (2018).¹¹⁵ In 2015 Tencent even set up the chartered bank, WeBank, which is considered the first private Internet bank in China.¹¹⁶ Thus, Tencent has gained complete presence throughout all the retail banking sector, driving all its WeChat user base towards its own financial ecosystem.

There are more examples like this related to other Big Techs, including Google, Apple, Alibaba, and Facebook. Virtually all of them tried to launch financial products and achieved definite success, especially among millennial customers.

This is a clear sign that few dominant platforms or ‘industry architects’ are likely to emerge in the financial industry. Industry architects shape how the industry evolves in order to ‘capture a disproportionate amount of the surplus value created by the innovation’.¹¹⁷ These are the firms with superior performance that can control ‘bottlenecks’ and ‘leverage their position of strength over all other companies’.¹¹⁸ The battle over who becomes the financial industry architect will define who ultimately shapes the further development of the financial sector.

The Big Tech companies have a good chance to win this battle because they already possess several strategic advantages over both traditional financial institutions and Fintech. First, Big Tech companies have amassed rich customer data in other markets where they have already gained a strong presence (e.g. social media, online marketplace, etc.). These data are much more vast and, importantly, update almost instantly, than any data owned by a single bank let alone a Fintech start-up. On top of that, Big Techs benefit from emerging technologies, such as Big Data, AI, predictive analysis,¹¹⁹ that constitute further architectural advantage as it allows the setting of standards for the whole ecosystem.¹²⁰ Big Techs can leverage their strong position, revenues and consumer network in adjacent markets to gain a foothold in the financial sector. Importantly, unlike nascent Fintech companies, Big Techs have already strong brand recognition and ‘are generating a level of trust previously reserved only for traditional banks.’¹²¹ Finally, they are still subject to much looser (if any) regulations compared to traditional banks. By adopting a business model of ‘intermediaries’, they avoid burdensome regulations but can hold the grip of the most important customer interactions. In fact, Amazon attracts millions of dollars of customers’ money through Amazon Cash without the need to

115 ‘Tencent’s Payment & FinTech Business, an Important Revenue Growth Driver’ Medici (1 April 2019) <https://gomedici.com/tencent-payment-fintech-business-important-revenue-growth-driver/> accessed 20 May 2019.

116 Gaurav Sharma, ‘FinTech in China: A 53-Point Summary’ (n 63).

117 See Ioannis Lianos (n 69) 362.

118 *ibid* 364.

119 CapGemini, ‘World Fintech Report 2018’ (n 65) 11.

120 Ioannis Lianos (n 69) 363.

121 Jim Marous (n 52).

comply with the capital requirements as regulated banks do.¹²² Alibaba's Yu'e Bao fund is the world's largest money market fund, with \$165.6 billion under its management, still loosely regulated.¹²³ These are examples of asymmetrical regulation that can place banks in artificial disadvantage relative to Big Tech platforms.¹²⁴

In this situation, access regulations such as PSD2 and Open Banking may miss the mark, as they do not take into account an important component of the competitive triad, namely – the Big Tech companies. According to PSD2, traditional banks are obliged to provide access to their customer data to all authorised competitors (including Big Tech platforms) free of charge. In fact, in the view of PSD2 fully entering into force in September 2019, many Big Tech companies have hurried up to obtain the so-called 'e-money' license in the European Union, including Amazon (May 2011, Luxembourg)¹²⁵ and Facebook (back in October 2016, Ireland)¹²⁶ among the first, followed by Google (December 2018, Lithuania and January 2019, Ireland)¹²⁷ and Alipay (January 2019, Luxembourg).¹²⁸ This license will allow them to tap into the customer data collected by the banks and provide 'one-click' payment and account information aggregation services directly to consumers.

On the other hand, Big Tech companies are not obliged to open up their customer data to competitors – to the contrary, under GDPR they 'will de facto retain economic sovereignty over the data of their customers'.¹²⁹ This has the potential to exacerbate the data disparity between banks and Big Tech platforms and lead to traditional banks being 'enveloped' by the tech giants, thus losing the fight for architectural advantage.¹³⁰ The banks and smaller Fintech competitors might end up as mere suppliers of unbundled financial products with the market power transferred to owners of the customer experience (i.e. digital platforms).¹³¹ In fact, Big

122 See Steve Cocheo, 'Amazon Bank' Is Already Here, Without a Charter or Regulatory Approval' *The Financial Brand* (20 August 2018) <https://thefinancialbrand.com/74543/amazon-bank-checking-account-regulators-charter/> accessed 08 April 2019.

123 Stella Yifan, 'Jack Ma's Fintech Start-up Shakes up China's Banks' (Market Watch, 29 July 2018) <https://www.marketwatch.com/story/jack-mas-fintech-startup-shakes-up-chinas-banks-2018-07-29> accessed 08 April 2019.

124 Miguel de la Mano and Jorge Padilla (n 103) 11.

125 Amazon Pay, License Information, <https://pay.amazon.com/ie/help/201751610> accessed 23 May 2019; 'Internet Giants Eye up the Banking Business' BBVA (29 January 2019) <https://www.bbva.com/en/internet-giants-eye-up-the-banking-business/> accessed 23 May 2019.

126 Christoffer Hernæs, 'What Facebook's European Payment License Could Mean for Banks' *TechCrunch* (12 January 2017) <https://techcrunch.com/2017/01/12/what-facebooks-european-payment-license-could-mean-for-banks/> accessed 23 May 2019.

127 Charlie Taylor, 'Google Gets Go-ahead from Central Bank for Payments' *The Irish Times* (5 January 2019) <https://www.irishtimes.com/business/technology/google-gets-go-ahead-from-central-bank-for-payments-1.3747901> accessed 23 May 2019.

128 Daniel Döderlein, 'What Does Alipay's New EU-License Mean For Banks?' *Forbes* (29 January 2019) <https://www.forbes.com/sites/danieldoderlein/2019/01/29/what-does-alipays-new-eu-license-mean-for-banks/#29a5bf9d639c> accessed 23 May 2019.

129 Miguel de la Mano and Jorge Padilla (n 103) 10.

130 *ibid* 13.

131 World Economic Forum Report, *Beyond Fintech* (n 68) 19.

Tech platforms deny their ambitions to become the likes of banks. What they want is merely to offer financial services to their customer base to increase participation in their digital ecosystems¹³² – ‘building a bank for [themselves]’,¹³³ or more precisely to their vast clientele. This reveals Big Tech’s ambition to occupy the most profitable position in the financial eco-system to extract most of the value generated by other levels without bearing the costs of regulatory compliance and relevant operation, security, and data protection risks. In the face of these challenges, Fintech and traditional banks have even stronger incentives to cooperate rather than compete against each other in order to morph into the modern digital platforms and stay atop the competition with Big Tech.¹³⁴

What are the implications for competition and regulatory policies? One of the options proposed to ensure a true level playing field is to introduce the reciprocity of data sharing obligations between banks and digital platforms.¹³⁵ This means that ‘[p]latforms above a certain size would have to grant access to others, including traditional banks, to a subset of their data’ (with the data subject to consent, of course).¹³⁶ This is in line with the general move to prescribe a wider access to the data collected by the digital platforms when such data is instrumental to compete and foster further innovation in the relevant or adjacent markets, especially when data collection happens incidentally and without special investment.¹³⁷ Though unclear how it would be implemented in practice, this suggestion rests on the important premise – the data sharing obligations should apply to all firms reaching the certain threshold regardless of the sector where they are active or their regulatory status. This ‘agnosticism towards the business model’¹³⁸ means that competition authorities and regulators should not look solely at the business model, but at the competitive impact it has on a relevant market, avoiding regulating only some of the players and skewing the competitive environment in these markets.¹³⁹

However, to effectively compete in financial markets, Fintech start-ups might require not just a one-time access to the data collected by the Big Tech platforms, but continuous data interoperability meaning real-time access to the data, normal-

132 See my blog on Data Driven Investor, ‘Apple Bank – the Future of Finance?’ <https://medium.com/datadriveninvestor/apple-bank-the-future-of-finance-2722d5bb1bcb> accessed 29 April 2019.

133 ‘Everything You Need to Know About What Amazon Is Doing in Financial Services’ (n 106).

134 CapGemini, ‘World Fintech Report 2018’ (n 65) 63.

135 Miguel de la Mano and Jorge Padilla (n 103) 21, 28.

136 *ibid.*

137 See Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, ‘Competition Policy for the Digital Era: Final Report’ (EU Commission, DG for Competition, 2019) 8-10, 76, 105; Justus Haucap, Wolfgang Kerber, Robert Welker, ‘Modernising the law on abuse of market power’ (Report for the Federal Ministry for Economic Affairs and Energy (Germany)), 6, <https://www.bmwi.de/Redaktion/DE/Downloads/Studien/modernisierung-der-missbrauchsaufsicht-fuer-marktmaechtige-unternehmen-zusammenfassung-englisch.html> accessed 10 December 2018; Viktor Mayer-Schonberger and Thomas Ramge, ‘A Big Choice for Big Tech. Share Data or Suffer the Consequences’, *Foreign Affairs*, 97(5) 48, 52.

138 Alfonso Lamadrid, ‘Regulating platforms? A competition law perspective’ (24 November 2015) <https://chillingcompetition.com/2015/11/24/regulating-platforms-a-competition-law-perspective/> accessed 10 April 2019.

139 *ibid.*

ly through privileged APIs.¹⁴⁰ This basically means extending the perimeter of PSD2 requirements to digital platforms. The scope of such extension is still unclear (for example, whether it should be applied only to platforms already active in the financial markets or any platforms owning the data that is essential for Fintech to provide the complimentary products to the platform's users). It is also unclear whether such interoperability should be provided only to Fintech companies or both Fintech companies and traditional banks. Miguel de la Mano and Jorge Padilla argue that the data sharing obligation through open API's should be applied to digital platforms vis-à-vis not only Fintech, but also vis-à-vis traditional banks, as digital platforms pose the largest threat to competition in financial markets.¹⁴¹ In addition, considering the constant confluence between Fintech and traditional banks, it might be difficult to separate the two. Also in line with the 'business model agnosticism' it might be undesirable to discriminate between competitors using different business models. On the other hand, some authors express concerns that if leading banks manage to benefit from the big data and network effects provided by the new digital business models (and potentially by open access to the digital platforms' data storages), these banks might gain even bigger market shares and pose threat to financial stability further exacerbating the "too-big-to-fail" problem.¹⁴² In this scenario, any type of access regulation (asymmetric and symmetric) might be a double-edged sword requiring careful assessment of its impact on the competitive conditions in the market.

Alternatively, rather than relying on the sector-specific regulations (like PSD2), the access to data amassed by dominant digital platforms can be mandated by competition authorities based on Article 102 TFEU and its likes in the national legislations. When dominant, data-rich companies refuse to grant other firms access to their data, provided that the access to such data is indispensable to compete effectively in the relevant or neighbouring markets and there is a real danger of further entrenchment of the market power, competition authorities should treat this as abuse of the dominant position under Article 102 TFEU. However, this involves careful balancing between the need to protect the investment incentives of dominant firms and ensuring that the markets remain contestable and the competition for the market is protected.¹⁴³ The benefit of such an approach is that it is context-sensitive and allows to give or deny access to the customer data of the dominant firms based on the competitive dynamics of the market at hand, avoiding potential inadvertent externalities produced by the access regulations. Having said that, the assessment of market power in the financial markets is very difficult due to the diversity of business models and potential sources of market power.¹⁴⁴ Identifying data-related exclusionary practices in financial markets also requires

140 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer (n 137) 84.

141 Miguel de la Mano and Jorge Padilla (n 103) 28.

142 Rory Van Loo (n 53) 250.

143 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer (n 137) 98, 106.

144 A. Fraile Carmona and al. (n 58) 48.

further elaboration of traditional theories of harm. These might include, for example, cross-usage of the data sets by big tech companies,¹⁴⁵ where a digital platform can use its privileged access to data obtained in one activity to leverage its position in the provision of other services, such as Fintech services.

Another problem might arise where the anonymous access to individual-level data or aggregated data is required to effectively compete in financial markets. Unlike PSD2 data sharing requirements, this involves access to the pseudonymized/anonymized and aggregated data of many users,¹⁴⁶ for example, to make accurate predictions of the user behaviour in order to deliver better services. One example might be a Fintech start-up that analyzes patterns in user behaviour to predict their chances to default on loan repayments and then rent out this solution to larger financial institutions.¹⁴⁷ The recent FSB report has pointed that 'banks and other lenders are increasingly turning to additional, unstructured and semi-structured data sources, including social media activity, mobile phone use and text message activity, to capture a more nuanced view of creditworthiness, and improve the rating accuracy of loans.'¹⁴⁸ Such AI and machine learning applications in Fintech crucially depend on the availability of Big Data that allow to find statistically meaningful patterns and deviations and predict the riskiness of loans, investment portfolios, as well as to make pricing decisions and detect financial crimes, money laundering and fraud.¹⁴⁹ There is already a plethora of vendors that provide machine learning for financial market participants, based on publicly available sources, such as news, market analytics, etc. However, it is clear that firms which have access to larger data sets get strategic advantage in making better predictions and delivering better services.

According to the recent EU Commission's Report 'Competition Policy for the Digital Era', in such a scenario the access to data can be granted when it could be demonstrated that no substitutes exist in the market (the data is not available from data analytics providers or cannot be collected by a Fintech firm on its own) and the relevant data is indispensable to compete in the complimentary markets where a data controller is dominant.¹⁵⁰ When it comes to personal data, the situation is complicated by the GDPR requirements. In such cases, 'access to data for specified purposes and specified acts of processing may be mandated by a competition authority based on an interest balancing (Article 6 lit. f GDPR) or based on Article 6 lit.

145 A. Fraile Carmona and al. (n 58)

146 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer (n 137) 75, 85-86.

147 See, for example, Penny Crosman, 'How Fintechs are Using AI to Transform Payday Lending' (American Banker, 07 March 2017) <https://www.americanbanker.com/news/how-fintechs-are-using-ai-to-transform-payday-lending> accessed 15 April 2019.

148 Financial Stability Board, 'Artificial intelligence and machine learning in financial services: Market developments and financial stability implications' (01 November 2017) 12, <http://www.fsb.org/wp-content/uploads/P011117.pdf> accessed 15 April 2019.

149 *ibid.*

150 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer (n 137) 101-104.

e GDPR which, *inter alia*, allows processing that is necessary for the performance of a task carried out in the public interest'.¹⁵¹ It should be noted that access to data necessary for the purpose of training algorithms for uses completely unrelated to the markets where the data owner is active cannot be granted based on competition law.¹⁵² The specific regulatory regime might be needed to this end.

Legal cases on granting access to the data and payment infrastructure in financial markets are yet to emerge. It is also too early to draw conclusions on the outcomes of the access regulations, such as PSD2 or Open Banking. It is clear, however, that continuous scrutiny of the competition dynamics evolving between Big Tech, banks and Fintech firms is needed to ensure that data sharing obligations are used to invigorate both inter-platform and intra-platform competition and not for tacit collusion or increasing the market power of some players. As data is the source of competitive advantage, the combination of big data possessed by banks and digital platforms can potentially foster creation of dominant platforms in financial markets. Therefore, the rise of big platforms and the challenges arising from network effects which create significant barriers to entry remain the main competition concern in financial markets.¹⁵³ As the battle for gaining architectural advantage over the financial industry is ongoing, competition authorities should strive to promote competition on merit between various platforms and business models as well as fair and non-exclusionary practices within the vertical value chains. To this end, market monitoring and careful assessment, rather than introducing new sector-specific regulations might be a desired short-term solution.

As described above, the financial industry currently undergoes significant transformation, with the advent of agile Fintech competitors (referring to companies delivering financial services exclusively through digital technologies), transition to the platform business model and the threat posed by Big Tech being the most important trends. Competition authorities around the globe generally assess Fintech as a positive trend and expect Fintech to apply continuous competitive pressure on incumbent financial institutions for the benefits of consumers. However, in more developed economies, Fintech companies opt for cooperation with established financial institutions rather than challenging them, while in emerging economies with the high degree of financial exclusion (e.g. China and India) the disruptive potential of Fintech is much more evident.

Access regulations, such as the second EU Payment Services Directive and Open Banking in the UK, have potential to reduce entry barriers for Fintech companies and allow them to compete on a par with large financial institutions. However, the emergence of Big Tech companies (Google, Apple, Facebook, Amazon, Alibaba, etc.) offering a whole array of financial services to their customers changes the competitive dynamics in financial markets. In the future, the battle for becoming

151 *ibid*, 104.

152 *ibid*, 98.

153 A. Fraile Carmona and al. (n 58) 13; Rory Van Loo (n 53) 250.

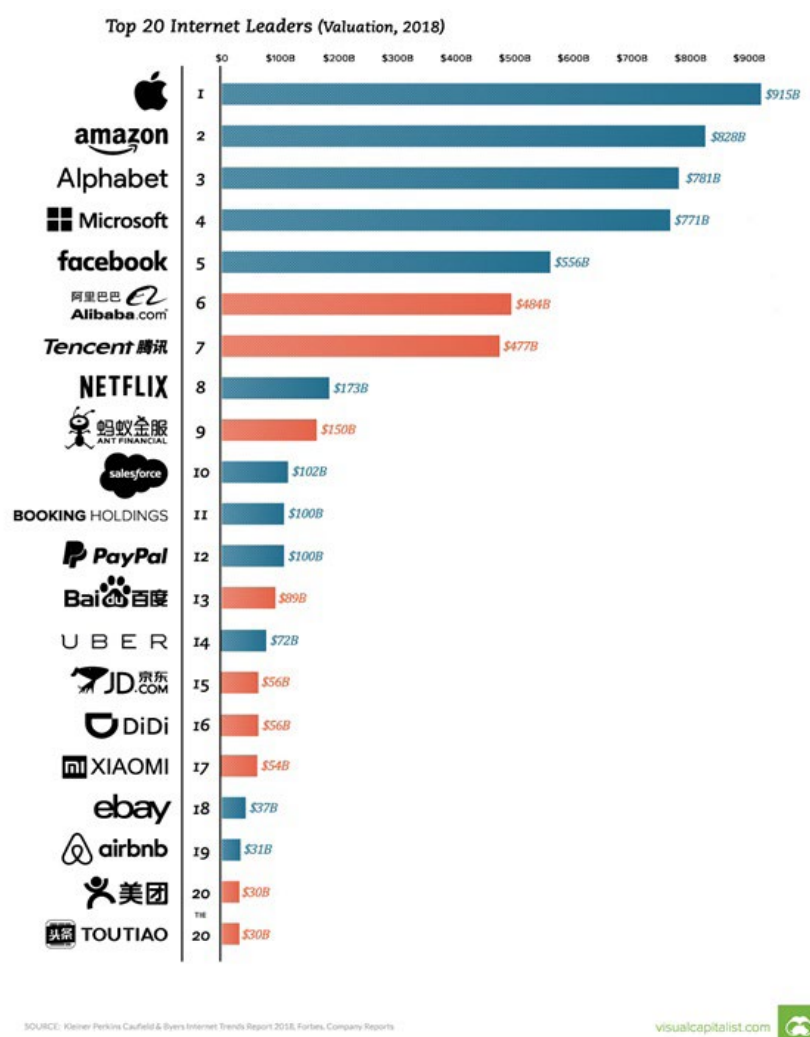
a dominant financial platform that holds a grip over the customer interface might become definitive in the further development of Fintech and financial industry in general.

Therefore, competition authorities need to analyse carefully the interactions within this competitive triad (traditional banks, Fintech and Big Tech) and monitor market developments in order to identify tipping points and potential bottlenecks that might lead to the emergence of dominant financial platforms and the exclusion of competitors from the market. Extending a perimeter of access regulations to the tech giants and obliging them to open the access to their data might represent one solution to this concern. Imposing on dominant platforms an obligation to share their data under Article 102 TFEU and its likes is another option to tackle exclusionary practices in finance. In any case, protecting competition in modern financial markets requires careful recalibration of traditional competition law tools and approaches.

1.2. Consequences of digital competition for economic actors and the intangible economy: empirical insights

1.2.1. Country-level effects

The BRICS countries already occupy a significant place in the global digital system, despite significant differences within the group. China takes the lead in the global digital sector. It is the only country not only among the BRICS countries, but globally – with companies in the top 20 internet firms by market valuation, along with U.S. firms (Figure 1.2.).

Figure 1.2. Top 20 Internet leaders by market valuation, 2018

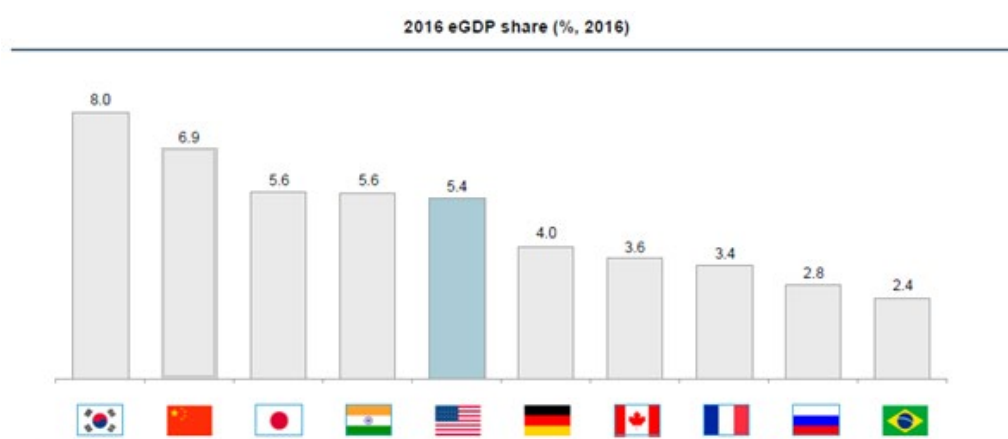
Source: <https://www.visualcapitalist.com/visualizing-worlds-20-largest-tech-giants/>

Other BRICS countries have their own digital leaders. Forbes Top 100 Digital Companies list¹⁵⁴ also includes, in addition to 16 companies from China, two companies from India and one from South Africa.

The BRICS countries are among the largest in the world in terms of size of their digital economy. Of the 10 countries with the highest eGDP¹⁵⁵ share four places are taken up by BRICS countries. Two of these countries – China and India – have a higher eGDP share than the U.S. (Figure 1.3).

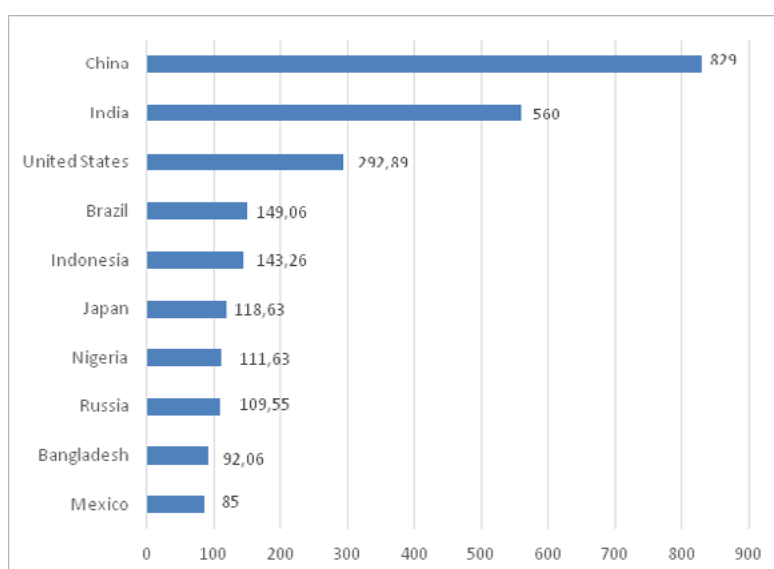
154 <https://www.forbes.com/top-digital-companies/list/#tab:rank>

155 eGDP (Gross Domestic Product) is an indicator proposed by the Boston Consulting Group (BCG) that calculates digital/internet-related expenditure in private consumption, investment, government expenditure and net export.

Figure 1.3. Top 10 countries with highest eGDP share in 2016

Sources: (Cheng, 2017)¹⁵⁶, BCG

The number of internet users – actual and potential – makes the BRICS countries' markets very attractive for global digital players operating in e-commerce, social networks, search, etc. (Figure 1.4.).

Figure 1.4.: Countries with the highest number of internet users as of March 2019 (in millions).

Source: Statista

Thus, the BRICS countries are currently in the forefront of global digital competition.

1.2.2. Region-level effects: BRICS

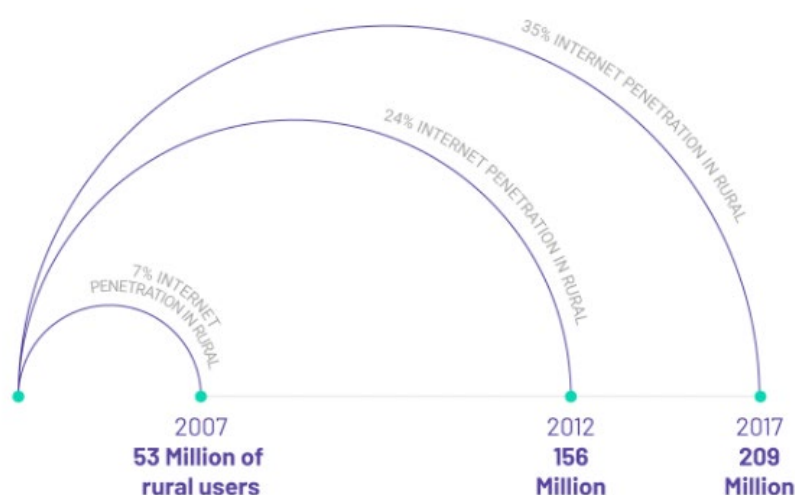
In terms of regional effects of digital competition in the BRICS countries the main barrier to an even distribution of gains between regions is the digital divide within their vast

¹⁵⁶ Cheng W. (2017) The Tale of the Digital Economy in China. Presentation for the 5th IMF Statistical Forum, November 16, 2017.

territories, namely between rural and urban areas. This problem is especially important for China and India. In 2015, half of the world's unconnected population (2.2 out of 4.3 billion people) resided in China and India.¹⁵⁷ However, the countries have targeted that divide and have made tremendous strides towards narrowing it in the last few years.

The latest statistics from India, characterized by the lowest internet penetration rate among the BRICS countries, indicate that while the number of urban users grew 7% in 2018 compared to 2017, the number of rural users increased 35%, reaching 251 million users (expected to reach 290 million in 2019). Consequently, the penetration rate in rural India reached 25% in 2018.¹⁵⁸ China has also been active in increasing internet penetration rate in rural regions. The progress between 2007 and 2017 is presented in Figure 1.5 .

Figure 1.5.:Internet penetration in China's rural regions, 2007-2017



Source: China Internet Report 2018

In 2017, Brazil exhibited a 74.8% access rate for urban areas and a 39% for rural areas. Regional disparities exacerbate this scenario: the less connected municipalities in Brazil are in predominantly rural areas of the North and Northeast regions.¹⁵⁹ While in general high prices for internet access ranked as the main reason for lack of connectivity, the lack of infrastructure is listed as a key reason for absence of internet access in the rural households compared to urban households.

South Africa is also characterized by high variance in internet access between provinces. Gauteng has the highest rate with 72.2% of its people having online access, while the Western Cape is second with a 68.5% rate. At the other end of the spectrum Limpopo

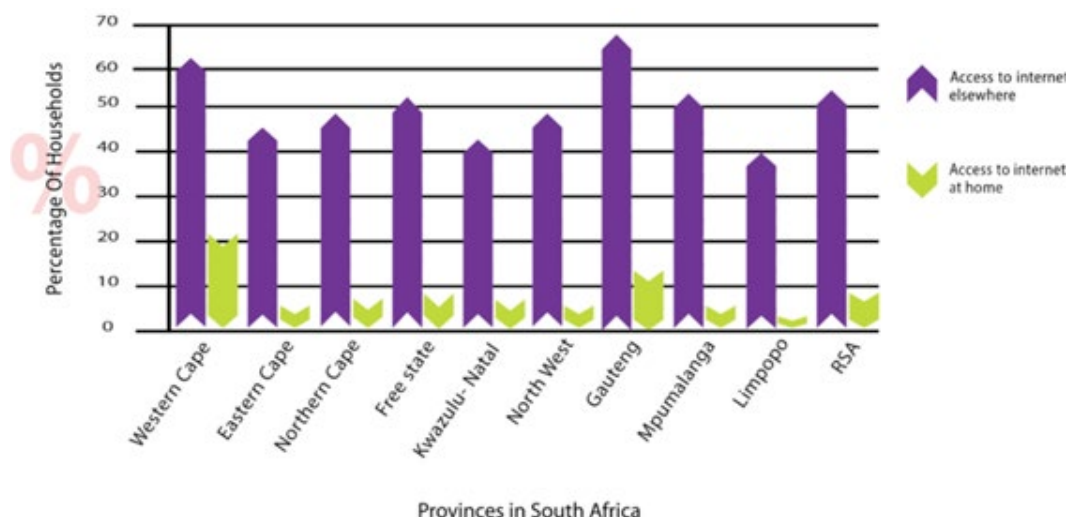
157 West D.M. (2015) Digital divide: Improving Internet access in the developing world through affordable services and diverse content. Center for Technology Innovation at Brookings. https://www.brookings.edu/wp-content/uploads/2016/06/West_Internet-Access.pdf

158 <https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-to-reach-627-million-in-2019-report/articleshow/68288868.cms?from=mdr>

159 <https://www.cps.fgv.br/cps/telefonica/>

exhibits only 42.4% of residents having any sort of access to the internet, with only 1.6% having an active connection at home¹⁶⁰ (Figure 1.6.).

Figure 1.6. Percentage of households in South Africa with access to internet by province



Source: IOA (2017) based on the General Household Survey of Statistics South Africa, 2015¹⁶¹

The situation in Russia is overall more favorable and more even in terms of internet access. Even though the large territory makes it difficult to provide connection in the remote rural areas, and consequently some regions are worse off in terms of connectivity, the high rate of urbanization makes the issue of access a lesser concern overall.¹⁶²

1.2.3. Consumer-level effects

Digital competition is meant to bring consumers many benefits: lower prices, increased variety of available products and products better tailored to the consumer's specific needs, lower transaction costs, etc. However, a lack of competition in the digital sphere can lead to a redistribution of potential consumer gains towards the companies wielding high market power. Additionally, benefits from digitalization come with increased risks of identity theft, credit card or banking fraud, data collection by online services and a loss of control over personal data. Low trust in digital businesses on the consumer side can hinder further digital development, when consumers make significant changes to their behavior to avoid the risks associated with digital interactions – including making less payments and purchases via the internet.

The CIGI-IPSOS Global Survey on Internet Security and Trust (2019) shows that this is an acute issue for the BRICS countries, where consumers in the past year have made such

¹⁶⁰ <https://www.thespacestation.co.za/the-latest-sa-internet-connection-stats/>

¹⁶¹ In On Africa (2017) The digital divide in South Africa's higher education sector: why public internet access is important in the context of tertiary education <https://www.inonafrica.com/2017/08/07/digital-divide-south-africas-higher-education-sector-public-internet-access-important-context-tertiary-education/>

¹⁶² Digital.Report. Russia: State of affairs report. 18.04.2018 <https://digital.report/russia-state-of-affairs-report/>

behavioral changes more frequently than on average (Figure 1.7).

Figure 1.7.: Aggregated answers to question “How have you changed anything about how you behave online compared to one year ago? (Please select all that apply.)”

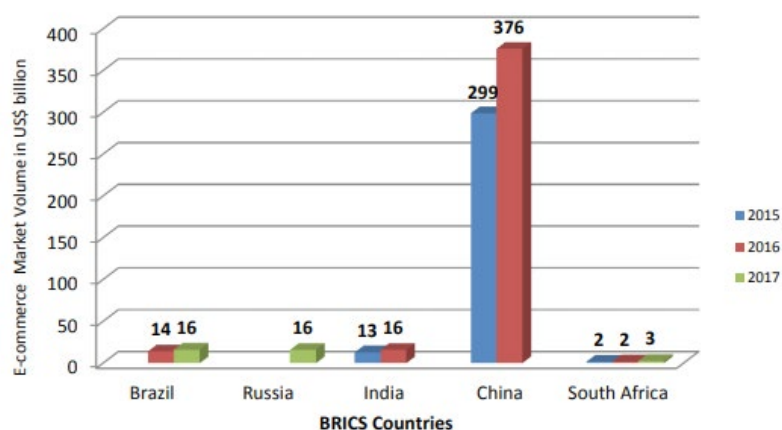
	REGIONS							
	Total	North America	LATAM	Europe	APAC	G-8 Countries	BRICS	Middle East/Africa
Base: All Respondents	n=25229	n=2001	n=2176	n=6009	n=8011	n=8009	n=5169	n=6017
Avoiding opening emails from unknown email addresses	45%	49%	47%	43%	46%	44%	50%	40%
Disclosing less personal information online	41%	39%	47%	34%	41%	34%	46%	41%
Avoiding certain Internet sites	40%	39%	52%	34%	37%	34%	48%	38%
Using antivirus software	36%	36%	47%	31%	39%	32%	48%	30%
Changing your password regularly	33%	32%	37%	26%	33%	26%	39%	35%
Avoiding certain web applications	32%	29%	40%	26%	31%	25%	41%	31%
Cutting down on the amount of biographically accurate information you divulge online	29%	26%	36%	23%	30%	23%	31%	24%
Self-censoring what you say online	21%	26%	20%	14%	22%	17%	25%	25%
Changing who you communicate with	15%	15%	15%	8%	15%	10%	21%	17%
Doing fewer financial transactions online	15%	13%	21%	9%	14%	10%	19%	16%
Making fewer online purchases	12%	10%	15%	9%	11%	9%	16%	13%
Closing Facebook and other social media accounts, etc.	11%	12%	11%	8%	11%	9%	14%	12%
Using the Internet less often	8%	6%	8%	5%	6%	5%	8%	10%
None of these	16%	22%	7%	25%	15%	26%	8%	10%

Source: Ipsos (2019)¹⁶³

As for the benefits that consumers can derive from digital competition, they are linked with the level of engagement with the digital economy that the consumers exhibit. The BRICS countries show considerable variation in this respect.

In terms of retail e-commerce sales, China is the indisputable leader – its market size in this dimension is larger than the aggregate of other BRICS countries (Figure 1.8.).

Figure 1.8.: BRICS e-commerce sales



Source: UNIDO, ITC (2017)¹⁶⁴, p. 19

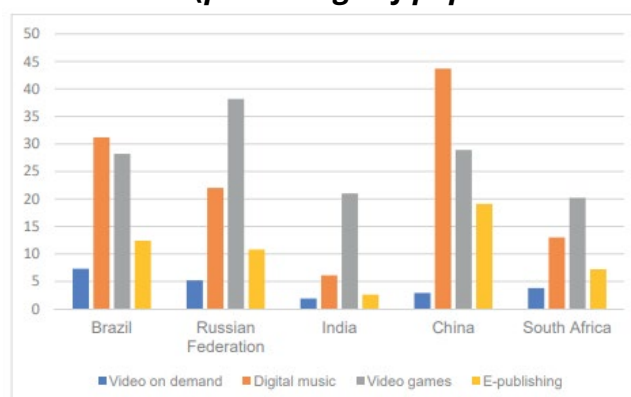
Although the size of China’s e-commerce market stems from a set of unique conditions impossible to match, it still shows that there is large potential for further e-commerce growth in other BRICS countries.

¹⁶³ 2019 CIGI-Ipsos Global Survey on Internet Security and Trust <https://www.cigionline.org/internet-survey-2019>

¹⁶⁴ UNIDO & ITC. Status, opportunity and challenges of BRICS e-commerce. 2 August 2017 [http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/BRICS%20E-commerce%20_Status%20Opportunities%20and%20Challenges_22AUG2017_final\(1\).pdf](http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/BRICS%20E-commerce%20_Status%20Opportunities%20and%20Challenges_22AUG2017_final(1).pdf)

Digital markets for specific categories of products also have varying popularity among consumers in the BRICS countries. Chinese and Brazilian consumers are actively engaging in the digital music segment, while Russian, Indian and South African consumers are relatively more engaged in the digital markets for video games (Figure 1.9.).

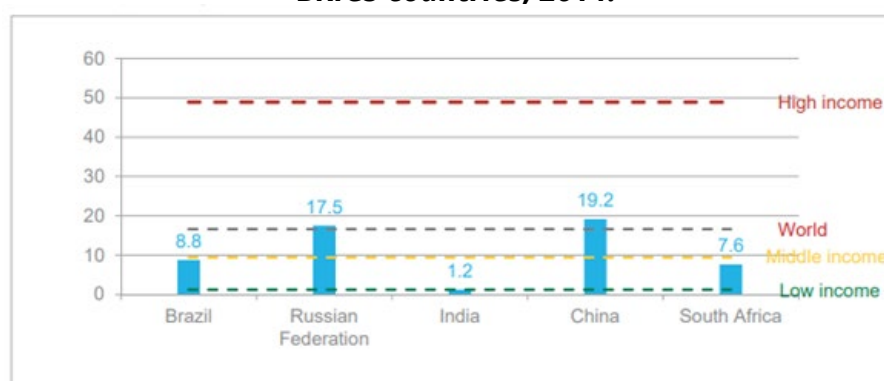
Figure 1.9. Digital market penetration rate, BRICS countries (percentage of population over 16)



Source: ITC (2017)¹⁶⁵

There is also area for further development concerning the engagement in online payment and buying products on the Internet (Figure 1.10.). Although the share of population that was paying bills and buying products on the Internet in 2014 was slightly higher than the world average in China and Russia, the other BRICS countries were behind the world average, with the most significant gap demonstrated by India.

Figure 1.10. Share of population that pays bills or buys things on the Internet, BRICS countries, 2014.



Source: ITC (2017)¹⁶⁶

Consequently, in most BRICS countries there is sufficient room for increasing consumer engagement with digital markets so they can share in the benefits provided by the digital economy. At the same time, developing countries are the ones that exhibit the most

165 International Trade Centre (2017). BRICS countries: Emerging players in global services trade. ITC, Geneva. http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/28_BRICS_Services_new_270717_final_Low-res.pdf

166 International Trade Centre (2017). BRICS countries: Emerging players in global services trade. ITC, Geneva. http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/28_BRICS_Services_new_270717_final_Low-res.pdf

caution and distrust towards digital interactions. This provides the reason why the governments of the BRICS countries need to specifically address the consumers' safety and privacy concerns so as not to impede the development of the digital sector.

1.3. The new global digital eco-system and BRICS: a political economy perspective on the relation between industrial policy and competition law and policy

1.3.1. Industrial policy and digital transformation: an overview

As the digitalization of markets continues, geographic market boundaries expand and gradually become less pronounced, allowing us to talk about global markets for digital services. Network effects, the decrease of transformation and transaction costs and a lowering of barriers to entry characteristic of digital technologies have a substantive part to play in the integration of digital markets, with efficient and innovative firms expanding their operations onto a global scale. Their expansion also brings about an increase of their market power, which poses a challenge for competition policy. On the one hand, hindering efficient expansion can stifle innovation and decrease consumer welfare in a dynamic setting. On the other hand, beside the general negative consequences of abuse of market power, the global aspect of digital markets entails at least two additional complications that make the competition problem not only a matter of efficient allocation of resources, but also a matter of distributive effects. If the dominant firms are based in higher income countries while their consumers are from developing countries, the market power abuse redistributes welfare from countries that are already at a technological disadvantage.

These effects could perhaps ultimately be mitigated by a consistent competition policy on affected markets, even if such a policy does not aim specifically at dealing with distributional impacts and focuses, following a more traditional view, on efficiency. But digitalization affects the economy not only on the level of isolated markets, but also along the global value chains in the digital sphere. The opening up of markets and the expanding of their geographical boundaries due to the spread of digital technologies can potentially induce an effect analogous to the Vanek-Reinert effect.¹⁶⁷

The idea behind the argument is that while developed countries have comparative advantages in increasing-return industries in global value chains, specialization leaves developing countries stuck with specializing in diminishing-return activities. The Vanek-Reinert effect demonstrates that a sudden transition to free trade can destroy the most efficient industries in a less efficient country and send it into a vicious circle of poverty. In the same vein, abruptly removing the barriers for global digital giants to function on domestic markets in a developing country can potentially have chilling effects for the country's own technological companies. Losing the battle to global players might mean cheaper and better services for the country's consumers in the short run. However, ulti-

167 Reinert E. (2007) How Rich Countries Got Rich... And why Poor Countries Stay Poor. Carrol & Graf, 365 p.

mately the country can become poorer and less technologically developed due to being forced out of the sectors with the most added value and characterized by the highest rates of innovation.

Striking an optimal balance between the stimulating effect of competition on efficiency and the need to enact some protecting measures for national markets and competitors requires a measured approach to industrial policy. While this approach would not completely renounce the benefits of global competition, it would provide enough support for certain national businesses to survive in the rapidly changing digital sector. In this sense industrial and competition policy do not necessarily come into conflict, but can rather be complementary. A horizontal industrial policy¹⁶⁸ can have a more favorable impact on competition than a vertical one: competition effects largely depend on the specific implemented instruments of industrial policy. Competition policy, in turn, can be guided not by a narrow definition of its goals and instruments, but by a more nuanced approach, recognizing the countries' relative positions along the global value chains and the possible distributive effects. Consequently, in this perspective, competition policy could be aligned with the goals of industrial policy and ensure a more holistic approach.

The need for a balanced approach to industrial and competition policy in the world of rapidly developing digital technologies calls for a political economy perspective on their interaction. This is especially important for BRICS countries, which, though sufficiently diverse, have much to gain from increasing digitalization in terms of overcoming internal challenges and enhancing their role in the global economy:

1) *Technological modernization*. Digitalization allows developing countries to skip a few technological stepping stones and proceed to implementing the most modern technologies. The case of China's rise of mobile payments is an example of this: Chinese consumers basically went straight from cash payments to mobile payments, skipping the stage of credit and debit cards.¹⁶⁹ In this regard, China took actions to delay the entry of foreign credit card companies in its territory, despite having clear commitments upon the accession to the World Trade Organization.¹⁷⁰

2) *Digital divide/digital inclusion*. As seen above, most BRICS countries are vast in size and characterized by significant regional economic and social differentiation. Internet access and the differing ability of consumers to navigate the digital sphere can increase regional inequality. Market forces are often not enough to stimulate

168 There are two ways to interpret vertical and horizontal industrial policy. On an inter-industry level, vertical policies focus on specific industries, while horizontal policies seek to improve operational conditions and capabilities across several sectors (UNCTAD, World Investment Report, 2018, p. 126). On an intra-industry level, vertical policy implies the support of specific enterprises, while horizontal policy allows support of enterprises if they are determined in accordance with objective criteria (Idrisov G., 2016. "Towards modern industrial policy for Russia," Research Paper Series, Gaidar Institute for Economic Policy, issue 169P)

169 See, e.g., Hill J. Fintech and the Remaking of Financial Institutions. Academ Press, 2018, p.277-278

170 Bernard Hoekman and Niall Meagher, 'China – Electronic Payment Services: Discrimination, Economic Development and the GATS' (2014) 13 World Trade Review 409, 441.

private companies to provide internet access in underdeveloped territories. Therefore, one of the goals of digital policy in developing countries can be ensuring universal internet access. Regional digital inequality can also contribute to the global digital divide which refers to the disparities of access to the internet and related services between higher income and middle and lower income countries.

3) *Access to technology.* Technological modernization demands access to technologies that can be concentrated in the hands of foreign companies. A typical problem is the amassing of technological patents by international companies that use them as a source of bargaining power against companies from developing countries. Therefore, the digital industrial policy needs to include provisions concerning possible ways of gaining access to such technologies – by substitution, acquisitions or other measures.

Having outlined the basic framework of our analysis and the main questions we hope to answer, it is now time to turn to the interplay of industrial and competition policy in the digital sphere in BRICS countries.

1.3.2. Framework of digital strategies

The BRICS countries have integrated digitalization into their strategic policies and have both used the already existing government strategic management tools and developed new ones specifically for the purposes of promoting digitalization.

In China the state plays a dominant role in shaping the digital economy. The current digital strategies and plans in China include the major “Made in China 2025” program as the overall planning strategy and number of more specific planning policies (Table 1.2.).

Table 1.2.. Digital economy strategies and plans in China

Overall planning policy	Specific planning policies
Made in China 2025	Action Outline for Promoting the Development of Big Data, Guiding Opinions on Vigorously Advancing the “Internet Plus” Action, and Guiding Opinions on Enhancing the Integrated Development of the Manufacturing Industry and the Internet

Source: (CACS, 2018, p. 124)¹⁷¹

“Made in China 2025” is a strategy enacted in 2015 and aimed at achieving the industrial modernization of the Chinese economy. The strategy corresponds to the “Industry 4.0” program of the German government. Its focus is promoting “smart manufacturing” technology as a means of upgrading industrial processes in order to boost the competitiveness of Chinese companies both on domestic and global markets. While in the short run this policy might provide attractive business opportunities for foreign firms, the policy’s end goal is to grow Chinese companies that are technologically advanced enough to compete in international markets in the sphere of cutting-edge technology.

171 Chinese Academy of Cyberspace Studies (2018) World Internet Development Report 2017. Springer. 312 p.

There are several government programs relevant to the digital economy in India. In 2015 the Government of India launched its “Digital India” campaign, aimed at building digital infrastructure and increasing the availability of Internet among citizens, especially living in poor regions, as well as promoting government services online, and supporting a number of industries. Domestic groups of interests that were affected by promoting the program include not only local IT firms supplying goods and services *for government programs of providing government services online*, but also digital firms gaining from the growing demand that stems from an increased population involvement in e-commerce¹⁷². One of the main targets of the “Digital India” campaign is improving digital literacy of the population and thus increasing involvement in digitalization and developing digital markets. A more widespread use of digital services in traditional industries is believed to improve the effectiveness of the Indian economy.

A more generalized policy that builds a framework around India’s targets in digital economy development and its place in global digital value chains along with ensuring digital sovereignty is the National Digital Communications Policy (2018). Taking into account the major role that India plays in software development, an important addition to the National Digital Communications Policy is the National Policy on Software Products (2019). The latest policy proposals include the Draft National e-Commerce Policy (2019), which addresses the provision of data sovereignty, as well as a large array of e-Commerce issues, including FDI rules, consumer protection and standardization; Draft e-Pharmacy Rules (2018) and Draft Digital Information Security in Healthcare Act (2017).

Brazil has also recently established its National Digital Transformation System centering around the Brazilian Digital Strategy (“EDB”, “E-Digital”). The strategy describes a system of 100 actions aimed at ensuring digital development. The main goals set in the strategy concern network infrastructure and broadening Internet access; research, development and innovation; trust in the use of ICT; education and professional training; international interaction; economical digital transformation (a data-based economy, a world of connected devices and new business models); citizenship and digital government, in articulation with the strategy of digital governance and the platform of digital citizenship¹⁷³. The governance structure of the Brazilian Digital Transformation Strategy was formally set up by Decree n 9.319, of 21 March 2018.

In Russia the framework strategic document in the digital sphere is the “Strategy for the Development of the Information Society in the Russian Federation for 2017-2030”, adopted in 2017. The strategy is supported by the State Programme on ‘Digital Economy of the Russian Federation’ (replaced by the Passport of the National Programme ‘Digital Economy of the Russian Federation’ in 2019). Much like in other BRICS countries, Russia’s digital strategy concerns the development of digital infrastructure, increasing the global competitiveness of Russian companies, creating new markets, decreasing entry

172 An example of promoting such initiatives is the innovation of Data Xgen Technologies Pvt Ltd that proposed the opportunity of creating email addresses in different languages named DataMail <https://www.datamail.in/aboutus.html>

173 Deloitte. Insights about Digital Transformation and ICT Opportunities for Brazil Report and Recommendations. January 2019, edition No 2 <https://www2.deloitte.com/content/dam/Deloitte/br/Documents/technology-media-telecommunications/ICT-insights-report-eng.pdf>

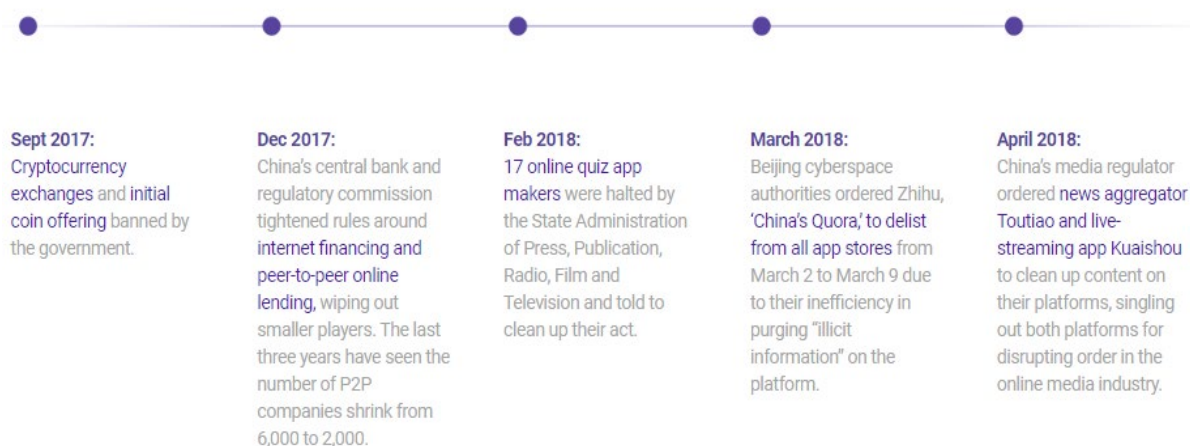
barriers in the digital sphere and treating data as a valuable resource. A feature that perhaps distinguishes Russia's strategy is the explicitly stated role of competition policy and its need to be updated to better correspond to the issues of the digital economy. This point serves to underscore the comparatively more active role that the Russian competition authority plays in digital industrial policy, which will be touched upon later.

1.3.3. Degree of prudence in introducing regulation

The BRICS countries mostly strive to adhere to a measured approach to regulating the digital sphere, taking care not to stifle new and emerging markets and technologies with over-regulation. When serious issues do arise, the goal is to react swiftly to avoid large losses in terms of consumer welfare and security. So far most of the regulations have had to do with security concerns, mainly concerning data storage and access, as well as cybersecurity.

Concerning specific regulation, China has promoted a "tolerant and prudent" approach to regulating the digital sphere, being careful not to stifle innovation with excessive regulatory reaction to emerging technologies and business practices. That is not to say that the state has been inactive in digital regulation, prompting the authors of the "China Internet Report 2018" to name the government "The Visible Hand" in China's digital development¹⁷⁴. As can be seen from Figure 1.11, the prohibitive regulations imposed in 2017-2018 have mostly been based on security concerns.

Figure 1.11. Chinese regulation measures in the digital sphere in 2017-2018



Source: <https://www.abacusnews.com/china-internet-report/>

In this stance, China is accompanied by India, which is also choosing a cautious approach to regulation in the digital sphere, avoiding excessive regulatory intervention. The position is also shared by the competition authority. Most of the specific regulations and policies are either recently enacted or currently being drafted and discussed, while the digital sector mostly operates under the already established general framework of rules

174 South China Morning Post (2019). China Internet Report 2019. China Internet Report. [online] South China Morning Post Publishers Ltd. Available at: <https://www.abacusnews.com/china-internet-report> [Accessed 1 Aug. 2019].

and regulations. The specific issues that have been identified in India's digital economy – now being addressed through regulation – are issues of personal data security (Draft Personal Data Protection Bill, 2018), FDI in e-Commerce (Press Note 2 of 2018 clarifying The Consolidated FDI Policy, 2017) and payment data localization (RBI Notification on Storage of Payment System Data, 2018). Yet, as has been shown above, a prudent regulatory approach does not mean a lack of industrial policy in the digital sphere.

Russia has enacted an array of security-centered laws that entail a significant increase of costs for ICT firms (and therefore have been met with criticism). These include laws known as the 'Yarovaya package' and Russia's Sovereign Internet Law. The 'Yarovaya package', among other things, concerns the mandatory storage of citizens' digital communication data and providing the authorities access to encrypted data from messaging services, emails and social networks. Russia's Sovereign Internet Law that will take effect in November 2019 is meant to ensure the safe and sustainable functioning of the Russian segment of the internet, but it imposes large additional costs on the internet providers, i.e. by obliging them to install devices to filter traffic. Those laws apply to ICT and digital companies that function in Russia but that does not ensure that the competitive effects will be fairly distributed. For example, national companies whose main business is in Russia, but which also compete internationally, will be burdened with significant additional costs of complying with new regulation – costs that may very well undermine their international competitiveness.

In Brazil, regulators have taken a cautious stance regarding issues in digital markets. Regulations affecting digital platforms are enacted by different regulatory authorities, responsible for telecommunications, data protection, consumer protection, e-government, and intellectual property among others. The sectoral regulators are generally well placed and equipped to deal with the digital aspects of their sectors, but they have been careful not to overstep their powers. They have generally avoided undue intervention in very dynamic markets. This has not deterred the authority from intervening in certain competition cases, as reported in Brazil's media.

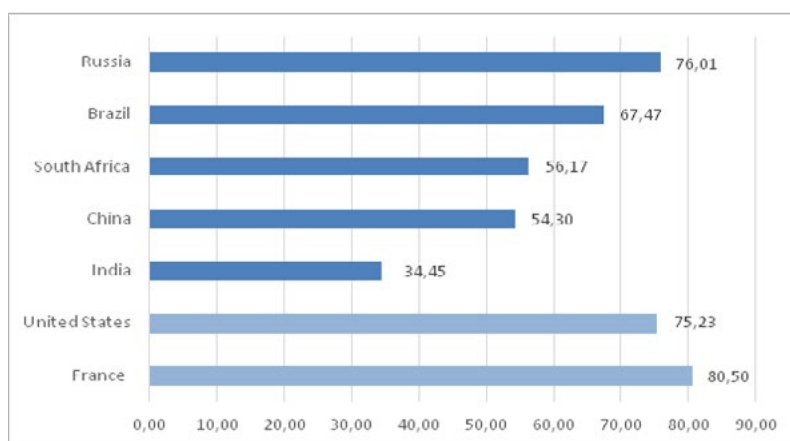
1.3.4. Providing internet access

The backbone of digital development is access to the internet for businesses and citizens. The BRICS countries have each developed measures to ensure increasing coverage through broadband and mobile internet. In Russia, the Federal Law 'On Communication' places additional obligations to provide internet access in settlements with small population sizes onto operators that occupy a significant position in the public communication network on the territories of not less than 2/3 of the regions of the Russian Federation. Currently the only company that qualifies for the status is the state-owned company Rostelecom. China is implementing a special "Broadband China" strategy that aims to significantly increase the levels of fixed broadband and 3G/ Long-Term Evolution (LTE) access as well as to ensure higher speed of access. In India the National Digital Communications Policy 2018 set one of its goals to be universal digital access in 2022. Brazil has

been using General Plans of Universalization Goals (in Portuguese, *Plano Geral de Metas de Universalização* or “PGMU”) to set universal access targets for telecom companies that have emerged after the privatization of the previously state-owned telecom giant Telebrás in 1998. The current plan is focused on expanding backhaul infrastructure and mobile Long-Term Evolution (LTE) in small cities, to make broadband access available to all; a major challenge in a country of continental dimensions and deep inequality.

The states’ efforts are often backed by forces of competition between mobile operators.

Figure 1.12 . Percentage of individuals using the internet in BRICS (U.S. and France included for reference) in 2017



Source: ITU

One of the problems that remains acute for BRICS countries is, as mentioned earlier, the digital divide between a country’s regions, specifically between rural and urban areas. Consequently, decreasing the divide remains a policy target for each BRICS country.

Internet and mobile penetration rates are only one side of the coin when it comes to accessibility. The other side is affordability – and here the BRICS countries are demonstrating a positive dynamic, offering affordability on a level similar and even exceeding some of the higher income countries.

One way to capture these aspects is the Inclusive Internet Index that measures for categories: availability, affordability, readiness (literacy, trust and safety, policy) and relevance (local content, relevant content).¹⁷⁵ Table 1.3. shows where each BRICS ranked by the Inclusive Internet Index in 2017.

175 The Economist Intelligence Unit Limited (2017). The Inclusive Internet Index: Bridging digital divides. The Inclusive Internet Index. [online] The Economist Intelligence Unit Limited. Available at: <https://theinclusiveinternet.eiu.com/assets/external/downloads/3i-bridging-digital-divides.pdf> [Accessed 1 Apr. 2019].

Table 1.3. BRICS countries in the Inclusive Internet Index ranking

Country	Rank in 2017
Russia	15
Brazil	18
South Africa	27
China	29
India	36

Source: <https://theinclusiveinternet.eiu.com/assets/external/downloads/3i-bridging-digital-divides.pdf>

In some of the BRICS countries competition authorities have contributed to making internet access and mobile telephony more affordable. In Russia the Federal Antimonopoly Service has led a series of cases against mobile operators dealing with excessive prices for intra-network and national roaming which have later been supported by industry regulation banning both types of excess roaming charges.¹⁷⁶ In China competition authorities have also conducted several investigations against its three network operators (China Mobile, China Telecom, China Unicom) which ended up suspended due to the companies making commitments to improve their conduct in line with the requirements of antitrust law, as reported in China's media. In Brazil, there has been some significant competition enforcement in infrastructure access, especially in telecommunications markets that give support to internet services. Merger control and settlements were used to tackle the access to infrastructure and to public utilities owned by former incumbents, as highlighted in the Brazilian press.

1.3.5. Data sovereignty

All the BRICS countries have demonstrated awareness of the specific problems that customers face when participating in digital markets and have implemented regulation changes in order to better reflect these new challenges, in particular concerning data and privacy protection. What, in a sense, sets the BRICS countries apart from the more developed countries is the particular challenges the former face in terms of data protection and the subsequent goals that are to be achieved in this field.

One such challenge is the provision of 'digital sovereignty', a definitive part of which is data sovereignty. The term has not been defined either in literature, or across formal country policies, but in a general sense it can be viewed to mean an "attempt by nation states to subject data flows to national jurisdictions".¹⁷⁷ Though the concern is communal for BRICS countries, Polatin-Reuben and Wright (2015) point out the difference in approaches: while China and Russia are considered by them to lean towards "strong data sovereignty" ("a state-led approach with an emphasis on safeguarding national

176 En.fas.gov.ru. (2019). ABOLISHING ROAMING IN RUSSIA IS RECOGNIZED THE BEST FAS CASE | Федеральная Антимонопольная Служба - ФАС России. [online] Available at: <http://en.fas.gov.ru/press-center/news/detail.html?id=54111> [Accessed 1 Aug. 2019].

177 Polatin-Reuben, Dana, and Joss Wright. 2014. "An Internet with BRICS Characteristics: Data Sovereignty and the Balkanisation of the Internet," July. <https://www.usenix.org/system/files/conference/foci14/foci14-polatin-reuben.pdf>

security”¹⁷⁸), India and South Africa choose the “weak data sovereignty” (“private sector-led data protection initiatives with an emphasis on the digital-rights aspects of data sovereignty”¹⁷⁹) approach, with Brazil’s position being more centered between these poles. But the increasing relevance of the challenges of data protection has led to a shift of approaches: since the work of Polatin-Reuben and Wright was published in 2015, India is currently in the process of developing digital sovereignty and data localization regulations, along with establishing preferences for local companies in acquiring access to data, which would move it into the “strong data sovereignty” category.

The possible effects for competition of data sovereignty (including data localization) regulations depends on the specific forms. Generally speaking, these measures are seen by affected parties and countries as protectionist¹⁸⁰ and hindering global competition.¹⁸¹ They might be viewed as a type of industrial policy. If these regulations are complemented by provisions of preferential access to data for local companies, as proposed by the draft regulation in India, then these regulations can contribute to leveling the playing field with global companies. BRICS national markets are large enough to provide significant competitive advantages through processing their data.

As for competition authorities, their approach to the need to incorporate privacy, data protection and data access effects in their analysis is not uniform. Brazil’s competition authority has repeatedly concluded that data and privacy concerns do not come under its authority. On this matter, the Brazilian Administrative Council for Economic Defense (CADE) acknowledged the importance of the data and privacy discussions, but confirmed that the evaluation of privacy concerns should be carried out by authorities such as the Department of Consumer Protection, the telecommunications regulator, and the Internet Management Committee.¹⁸² On the other hand, the Russian competition regulator has attempted to include into competition law provisions concerning access to data.¹⁸³

1.3.6. Protectionist aspects of digital policy

As pointed out earlier in discussion of the Vanek-Reinert effects, although typically barrier reduction and easier market penetration are associated with more vigorous competition, such unbounded competition may be detrimental to local businesses. In terms of market concentration, this may lead to more concentrated markets after international corporations take over domestic markets. The outcome is especially detrimental to the less developed countries’ digital sphere, which, as seen before, is globally dominated by

178 Ibid, p.1

179 Ibid, p.1

180 Ustr.gov. (2019). 2018 Fact Sheet: Key Barriers to Digital Trade. [online] Available at: <https://ustr.gov/about-us/policy-offices/press-office/fact-sheets/2018/march/2018-fact-sheet-key-barriers-digital> [Accessed 1 Aug. 2019].

181 A more technical analysis of protectionism under the international trade rules is provided in section 1.8 below.

182 Eg. See BRAZIL, Administrative Council for Economic Defence. Vote of Commissioner Ruiz and Verissimo on Administrative Proceedings 08012.010585/2010-29, involving Phorm and Telefonica Data S.A available at www.cade.gov.br.

183 Alrud. Russian Antimonopoly Enforcement: Developments for 2018 and Trends for 2019 http://www.alrud.com/upload/iblock/5b8/Russian%20Antimonopoly%20Enforcement_Developments%20for%202018%20and%20Trends%20for%202019.pdf

firms from more developed countries. This leaves the less developed countries' domestic production to concentrate on industries that yield a significantly lesser amount of value in the global value chains, thus furthering inequality between countries.

Some of the BRICS countries see their strategies for the support of their digital transformation as an opportunity to lessen their dependence on imports of technology. This intent is clear, for example, in the regulations introduced and currently being proposed in the Russian software markets. For example, in 2015, public authorities became obligated to only purchase Russian software¹⁸⁴. Exceptions can be made only in those cases when foreign software does not have Russian substitutes or when those substitutes do not fulfill the buyer's requirements¹⁸⁵. Later on, software from the Eurasian Economic Union was also admitted into the procurement process. Additionally, one of the latest government initiatives (not yet in force) is the requirement to pre-install Russian apps on smartphones that are sold in the country.

As for China's "Made in China 2025" strategy, Wübbecke et al. (2016)¹⁸⁶ argue that, judging by the wording of the strategy, it aims at gradually replacing foreign technology with Chinese technology. The strategy is not only domestic: the goal is also to prepare the ground for Chinese technology companies entering international markets. According to the report, the strategy intends to increase the domestic market share of Chinese suppliers for "basic core components and important basic materials" to 70 per cent by the year 2025. Semi-official documents related to the strategy set very concrete benchmarks for certain segments: 40 per cent of mobile phone chips on the Chinese market are supposed to be produced in China by 2025, as well as 70 per cent of industrial robots and 80 per cent of renewable energy equipment.¹⁸⁷ These targets confirm the import substitution trend.

A number of barriers either naturally exist or are maintained that carve out a market for Chinese firms to improve and develop, to the point where some of them become globally competitive. Firstly, there is the language barrier, but other barriers are put in place mostly through government policy. The combination of regulations known as "The Great Firewall of China", for example, by limiting access to foreign websites, search engines and apps, has channeled the existing demand for these services into Chinese analogues.

India's regulatory framework allows for differing regulations concerning foreign and local digital companies, especially in sectors where there are restrictions on the share of FDI allowed to take place. The proposed restrictions that accompany the digital sover-

184 The Decree of the Government of the Russian Federation No. 1236 of 16 November 2015 "On Prohibition of Admission of Computer programs originating from Foreign Countries for the Purposes of Procurement for State and Municipal Needs"

185 In practice many buyers circumvent this restriction, either because Russian substitutes for the software in fact do not exist, or by formulating requirements in such a way that the substitutes do not fulfill them.

186 Wübbecke J., Meissner M., Zenglein M.J., Ives J., Conrad B. (2016) Made in China 2025: The making of a high-tech superpower and consequences for industrial countries. Mercator Institute for China Studies, MERICS Papers on China https://www.merics.org/sites/default/files/2017-09/MPOC_No.2_MadeinChina2025.pdf

187 Ibid, p. 7

eighty policy and concern access to Indian data for foreign firms are also a measure that can provide support to local digital players.

1.3.7. Role of the competition authority

In the majority of BRICS countries, the competition authority's main focus concerning digital industrial policy is twofold. The first major function is careful antitrust enforcement based on the understanding of the specific features of digital businesses and the associated factors of risks and benefits. In this way, the competition authority ensures that competition in the digital sector remains fair and that the losses of consumer welfare do not outweigh the benefits of the digital economy. The second major function is the assessment of the competitive effects of policies and regulations introduced in the digital sphere.

Brazil's competition authority demonstrates a focus on competition effects and a commitment to the traditional goals of antitrust policy, ensuring that these are not forgotten among discussions of other issues pertaining to digital markets. Existing competition law is successfully applied to digital platforms and markets, and CADE and the Secretariat for Competition Advocacy and Competitiveness of the Ministry of Economy ("SACC", in the Portuguese acronym) additionally undertake efforts to advocate and promote competition in the digital sector. Although SACC takes the primary role of competition advocacy, championing pro-competition regulatory actions within the government, CADE may also have specific advocacy initiatives.

India's current enforcement of competition law in the digital sector has so far presumed the possibility to adapt the already existing law to the particular issues of digital markets. As noted earlier, India exhibits a rather prudent approach to both regulation and competition law enforcement in the digital sphere. In 2018-2019 the Government of India has been taking steps to begin a review of competition law, which might result in the competition authority acquiring new instruments for dealing with violations in digital markets.

India's competition authority also has the power to provide expertise concerning possible anticompetitive effects of decisions made by sectoral regulators upon request. However, the authority's opinion is not binding for the regulator, the competition authority's influence being limited.

In recent years China has established a fair competition review system encompassing policies enacted at the central and local government levels, which ensures that digital policies that pose significant competition risks will not be implemented. The competition authority can make suggestions and offer opinions during the policy-making stage. Additionally, the authority has powers to address the abuse of administrative power – in case a policy is enacted and leads to a restriction of competition – by proposing higher authorities to deal with the authority that enacted the policy under concern. As for competition law enforcement, the authority tries to avoid overenforcement, guided by the understanding that digital markets are still emerging. Nevertheless, a draft addition to

the competition law (“Provisions on the Prohibition of Abuse of Market Dominant Status (Draft for Comment)”) demonstrates a recent shift towards explicitly recognizing the role of data as a source of dominance in digital markets.¹⁸⁸

The Russian competition authority, in its turn, appears to be playing a much larger role in digital industrial policy than its colleague in other BRICS countries. Aside from ensuring antitrust enforcement in digital markets, the Russian competition authority has proposed to introduce major changes to competition law that are meant to better reflect the specific traits of the digital economy, including platform markets, the role of Big Data and network effects. The cases investigated by the Federal Antimonopoly Service of Russia (FAS) have also become the basis for and aligned with the regulation that was subsequently introduced or has been proposed in the digital sector. Examples include the authority's decisions on intra-network and national roaming charges by mobile operators that were later abolished by sector regulation, as well as the current proposal to introduce obligations of pre-installment of Russian apps on smartphones sold in Russia – based on the case of *Yandex v. Google*.¹⁸⁹

The digital strategies introduced in the BRICS countries in a sense influence competition law enforcement. These strategies underscore the importance of the digital sector for modern development, which ensures that special attention is paid to all the antitrust investigations and merger reviews concerning digital markets. Moreover, there is an increased awareness that these cases pose distinct challenges for competition law enforcement stemming from the particular characteristics of digital businesses and markets. Therefore, authorities view these cases as relatively complex and give them even more attention.

1.3.8. Mergers

Concerning merger review, competition law enforcement in the BRICS countries seems to recognize the specific efficiencies in digital markets that accompany the increase of market share. For example, despite some interventions, Brazil's competition authority has cleared the vast majority of mergers in the digital economy without restrictions. The decisions which involved restrictions ranged from the exclusion of non-competition clauses to the assumption of behavioural and structural commitments, some of them related to the provision of internet connectivity. Russia's competition authority, as well, has recently analyzed – and approved – a major deal between Uber and Russia's Yandex.Taxi concerning the consolidation of their online taxi hailing business in Russia and neighboring states.

The amassing of patents in the hands of global firms is a widespread challenge for different industries in developing countries. The merger approval process is one of the ways to alleviate this problem and to provide general access to technologies or access on better conditions. To illustrate, in Brazil, the transfer of IP rights is among the struc-

188 See files on China's media.

189 See files on Russia's media.

tural remedies that can be imposed by CADE or agreed by the parties to a notified transaction and compulsory licensing of IP rights is one of the measures that can be imposed to approve a merger.¹⁹⁰

A practical example is the recent Bayer-Monsanto merger, which was reviewed, analyzed and approved by all the BRICS competition authorities. Some of the decisions on this merger included provisions of access to technologies. For instance, China's MOFCOM, aside from structural conditions on the divestiture of parts of Bayer-Monsanto's global business, required the merged firm to provide access to its digital agricultural platform for Chinese agricultural software and application developers (and to allow Chinese users to register and use the products or application programs of digital agriculture). Such measures have the potential to promote the dissemination of technologies, strengthen the bargaining power of the merged firm's counterparts on different sides of the market and promote competition in adjacent markets.

A complementary issue is the reflection of BRICS's digital strategies in foreign merger policies. Apart from acquiring access to technologies through merger approval conditions, as in the Bayer-Monsanto case, another way of gaining access, as mentioned, is acquiring foreign technological companies. Here Chinese companies have had varying success. The largest deal so far has been the acquisition of the Swiss Syngenta company by ChemChina, a deal prompted by China's desire to use Syngenta's portfolio of top-tier chemicals and patent-protected seeds to improve domestic agricultural output¹⁹¹.

Other deals – concerning, for instance, US companies – have been blocked by various reasons, mainly through the invocation of legislation concerning foreign investment. The examples include the attempts of Ant Financial (sister company of the Alibaba Group) to buy the US money-transfer provider MoneyGram, of a Chinese-funded private equity firm to purchase Lattice Semiconductor, an American chip manufacturer and of another proposed deal by a Chinese fund to buy Xcerra (a provider of equipment for testing computer chips and circuit boards).¹⁹² As will be developed in Section 1.8.1, the trade wars exacerbate the fears of foreign investments for strategic acquisitions.

1.3.9. Investigations of competition law violations

The countries' digital strategies seem to also have an impact on the cases investigated by the competition authorities. Mainly this is reflected in the types of conduct that draw inquiries from the competition authorities – especially in cases dealing with foreign firms. If these cases end up being decided in favor of local companies, this might evidence certain protectionist aims. However, overall the outcomes of the cases vary and are not always in favor of the domestic firms.

190 See Law 12,529, of 30 November 2011, art. 61, §2, V.

191 Fortune. (2017). ChemChina Clinches Its \$43 Billion Takeover of Syngenta. [online] Available at: <http://fortune.com/2017/05/05/chemchina-syngenta-deal-acquisition/> [Accessed 1 Apr. 2019].

192 New York Times. (2018). China Microchips. [online] Available at: <https://www.nytimes.com/2018/02/23/technology/china-microchips-c-us-xcerra.html> [Accessed 1 Apr. 2019].

An example of conduct that draws scrutiny from competition authorities in BRICS is dominant foreign companies using data gathered from local consumers to further increase their market power and earnings. In the case *Shri Vinod Kumar Gupta against WhatsApp Inc.* in India the alleged abusive conduct of WhatsApp consisted of sharing users' private information with Facebook (which has owned WhatsApp since 2014), which in turn was being used by Facebook for targeted advertisements, as well as predatory pricing – by providing free services since 2016. The CCI, after considering the case, did not find a violation. However, the case emphasizes how the importance of data in the digital economy in conjunction with private information protection issues coincide with the low rate of digital literacy in India. The case with WhatsApp demonstrates that the privacy policy implemented by one firm can affect the market share of another firm in the same group. Thus one digital product supplied for free can be the source of data for another product which can be monetized (for example) through advertising. It follows that privacy policies and the level of digital literacy can affect data distribution and allocation efficiency in different markets.

A case that addresses the opportunity of platforms to gain market share using network effects and the interaction of international firms with local competitors is the *Meru Travel Solutions Pvt. Ltd. against Ola and Uber* case in India. The alleged anticompetitive conduct of Ola and Uber related to the incentive model of providing unrealistic incentives to the drivers and discounts to customers in addition to low fares. According to the claim, this was aimed at gaining a high market share and foreclosing competition in the market by creating entry barriers through anticompetitive agreement between Uber/Ola and its driver-partners. The CCI again found no violation, indicating that drivers and riders can easily switch from using one aggregator to another, thus there is no entry barriers and no dominant position of any one aggregator.

Although both cases were resolved in favor of the foreign digital companies (with the exception of Ola, which is one of the biggest Indian online transportation network companies), they indicate a sense of unfairness expressed by the plaintiffs and the perception that local firms and consumers should be protected against the bargaining power of global digital players.

An adjacent issue is not simply protection, but active support of local companies as global players. China's Qualcomm case illustrates the challenge of achieving strategic goals in the digital sphere and promoting innovation while being dependent on foreign technology. In 2015 China fined Qualcomm more than 6 bn yuan for abusing its dominant position and charging unfairly high licensing fees, improperly bundling unrelated licenses and including "no-challenge" clauses in its licensing agreements¹⁹³. The case highlights the key problem with access to technology and its distributional effects. Chi-

193 the Guardian. (2015). Qualcomm given record £631m fine in Chinese anti-monopoly case. [online] Available at: <https://www.theguardian.com/technology/2015/feb/10/qualcomm-record-breaking-631m-fine-chinese-anti-monopoly-case> [Accessed 1 Feb. 2019]. And materials taken from: Board, E. (2015). China's NDRC Provides Guidance Regarding Licensing of Standard-Essential Patents in <i>Qualcomm</i> Decision. [online] Antitrust Watch. Available at: <https://blogs.orrnick.com/antitrust/2015/04/24/chinas-ndrc-provides-guidance-regarding-licensing-of-standard-essential-patents-in-qualcomm-decision-2/> [Accessed 18 Jan. 2019].

na's position as a hub for manufacturing devices for internet access makes it dependent on certain high-tech components supplied by global companies. As these companies hold the bulk of patents for these technologies, substitution is unlikely. This opens up opportunities for global companies to exploit their market power and redistribute value from Chinese companies. Competition policy, by imposing constraints on the types of behavior such a dominant firm can engage in, can serve to improve the conditions of access to important technologies and redistribute in return some of the value that was originally absorbed by the global companies.

Russia's biggest cases in the digital and tech spheres – Yandex v. Google and Kaspersky Laboratory v. Microsoft¹⁹⁴ – have also been resolved in favor of domestic companies that also compete on international markets (Yandex and Kaspersky Laboratory respectively). This does not necessarily indicate a protectionist bias, but it is important to note that the FAS has previously been criticized for appearing to underenforce the law when large foreign firms are concerned and over-enforce it to the detriment of smaller domestic companies¹⁹⁵. In any case – whether it was intentional or not – the decisions in favor of Yandex and Kaspersky Lab help mitigate this criticism. However, the protectionist *effect* of at least one of these decisions – the Yandex v. Google one – has been further enhanced by FAS's policy proposal to require the pre-installment of Russian apps on smartphones.

As for the issue of underenforcement or overenforcement in the case of platforms, competition authorities in the BRICS countries have proven that they are not afraid to take on cases of digital platforms. Good illustrations are the WhatsApp and Ola/Uber cases in India, mentioned above along with the CCI case against Google on issues of search and advertising; the Google and Microsoft cases in Russia; the Renren v. Baidu case in China and cases concerning Tencent's messaging platform WeChat; and the Brazilian cases against hotel booking platforms and credit card companies. Some of these cases like the Google cases in India and Russia correspond to cases brought against Google by the EU. Taking into account some of the methodological difficulties associated with bringing cases against digital platforms, it is unwise to assume an overenforcement trend.

A recent trend in public discussion centers around data showing an increase of economic concentration in some of the major economies in recent years. For the U.S., Shapiro (2018) presents a thorough summary of the data, press articles and policy papers describing the growth of economic concentration during the past two decades, as well as a critique of the data and some of its interpretations.¹⁹⁶ Generally speaking, the main issue to discuss concerning the links between the apparent increase in global market concentration and the need for a more vigorous competition policy is whether the in-

194 See files on Russia's media.

195 Forbes.ru. (2014). Попкорн, сахар и такси: как ФАС борется с малым бизнесом | Мнения | Forbes.ru. [online] Available at: <https://www.forbes.ru/mneniya-column/konkurenciya/270499-popkorn-sakhar-i-taksi-kak-fas-boret-sya-s-malym-biznesom> [Accessed 18 Feb. 2019].

196 Shapiro, Carl (2018) Antitrust in a time of populism, *International Journal of Industrial Organization*, Volume 61, 2018, P. 714-748, [accessed on 01.03.2019] <https://doi.org/10.1016/j.ijindorg.2018.01.001>. <https://www.sciencedirect.com/science/article/pii/S0167718718300031?via%3Dihub#keys0002>

crease in industry concentration (if it really exists) signifies an increase in market power.

There are two main suggestions on the limitation of industry concentration data. First, that industry concentration is too aggregated a measure for competition analysis that usually deals with market concentration, and there is no method reliable enough to infer market concentration from industry-level data. Second, that even market level concentration is an imperfect indicator of market power, and perhaps we should be using alternative measures if we want to find out whether there in fact was an increase in market power of firms in the last two decades. Finally, the rise in levels of concentration is frequently being associated with the digital sector, with its large economies of scale and scope enhanced by network effects that logically lead to high levels of market concentration and the emergence of “superstar firms”. As the digital sector gains importance and weight in the economy, its high concentration can affect the overall level. It follows that another issue to be analyzed is whether the digital sector is the main contributor to the growth of aggregate concentration levels.

In the literature, an increase in industry-level concentration in the U.S. has been confirmed in Furman & Orszag (2015),¹⁹⁷ – who also note some upward trends in profits in earnings inequality, Autor et al. (2017)¹⁹⁸, Bessen (2017)¹⁹⁹, Gutierrez & Philippon (2016, 2017)²⁰⁰, Döttling et al. (2017)²⁰¹, Grullon et al. (2018)²⁰². The latter also find that the industries with the largest increases in concentration are characterized by higher profit margins and more profitable M&A deals, while the overall increase in concentration found in the study is not accompanied by a significant operational efficiency difference. This in sum suggests that market power is becoming an important source of value. Increased mark-ups in the U.S. are also demonstrated in De Loecker, & Eeckhout (2017)²⁰³, who also find that the increase is due to a sharp increase in high mark-up firms. Gutierrez & Philippon (2016, 2017) find that increased market concentration is accompanied by reduced capital investment. Barkai (2017)²⁰⁴ shows that increased concentration trends are connected with a sharp rise in excess profits (capital return above the level

197 Furman J., Orszag P. A Firm-Level Perspective on the Role of Rents in the Rise in Inequality. Presentation at “A Just Society” Centennial Event in Honor of Joseph Stiglitz, 2015, Columbia University.

198 Autor D., Dorn D., Katz L., Patterson C., Van Reenen J. The Fall of the Labor Share and the Rise of Superstar Firms. NBER working paper No. 23396, Issued in May 2017 <https://www.nber.org/papers/w23396>

199 Bessen J. E. Information Technology and Industry Concentration. Law and Economics Research Papers, 2017, No17-41, Boston University School of Law

200 Gutiérrez G., Philippon T. Investment-less growth: An empirical investigation. NBER Working Paper No. 22897, 2016; Gutiérrez G., Philippon T. Declining Competition and Investment in the U.S. NBER working paper 23583, 2017

201 Döttling, Robin and Gutierrez Gallardo, German and Philippon, Thomas, Is There an Investment Gap in Advanced Economies? If So, Why? (July 2017). Available at SSRN: <https://ssrn.com/abstract=3002796> or <http://dx.doi.org/10.2139/ssrn.3002796>

202 Grullon, Gustavo and Larkin, Yelena and Michaely, Roni, Are U.S. Industries Becoming More Concentrated? (October 25, 2018). Forthcoming, Review of Finance. Available at SSRN: <https://ssrn.com/abstract=2612047> or <http://dx.doi.org/10.2139/ssrn.2612047>

203 De Loecker J., Eeckhout J. The Rise of Market Power and the Macroeconomic Implications. NBER Working Paper 23687, 2017.

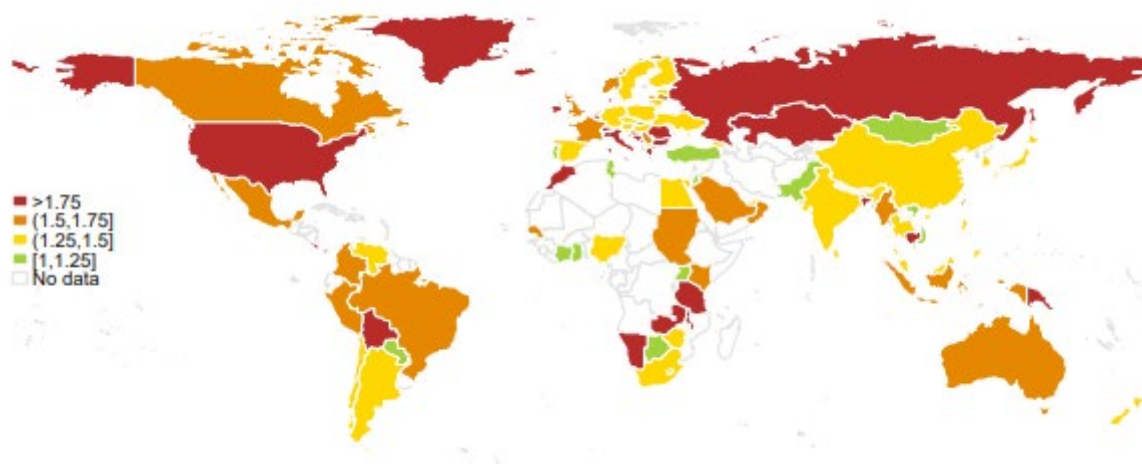
204 Barkai S. Declining labor and capital shares, working paper, University of Chicago, 2017.

required to attract investors). All of these studies seem to indicate that market power, measured from different angles, is rising. Still, the level of aggregation remains a point of critique. In this vein, Rossi-Hansberg et al. (2018)²⁰⁵ find that national concentration trends, when disaggregated to the local level, become a pattern of de-concentration in a number of industries.

Among studies dealing with estimates for market power dynamics in other countries, Bajgar et al. (2019)²⁰⁶ take a look at 10 industries both in Europe and in North America from 2000 to 2014 and demonstrate an increase of the level of concentration (measured as the share of the 10 largest companies in an industry). By contrast, Döttling et al. (2017) are able to confirm an increase in the U.S., but a decrease in Europe, using HHI for measuring concentration).

Concerning industry mark-ups as a possible measure of market power, Andrews et al., 2018²⁰⁷, show industry data in a sample of 22 OECD countries revealing an upward trend in industry mark-up level. In Calligaris et al., 2018²⁰⁸, firm-level data in a sample of 26 countries (including, out of the BRICS countries, India) is studied in the period from 2001 to 2014, and the upward trend in mark-up level, on average across country, is confirmed. Pertaining to the analysis of BRICS countries, the most interesting is the study by De Loecker and Eeckhout (2018)²⁰⁹, who extract data from the financial statements of over 70,000 firms in 134 countries, including the BRICS. They show that in the last four decades the average global mark-up has increased from 1.1% to 1.6% (Figure 1.13.).

Figure 1.13. Mark-up by country in 2016



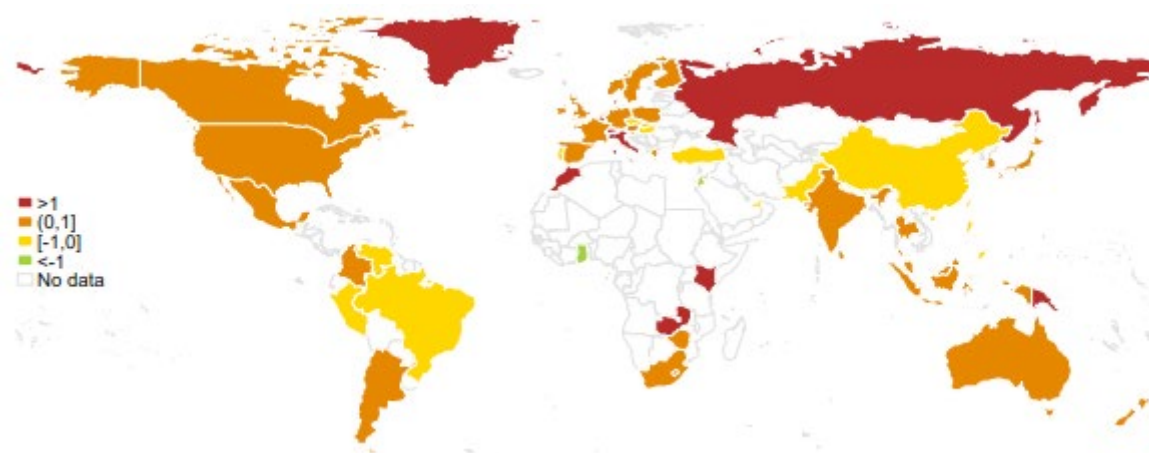
Source: (De Loecker, Eeckhout, 2018, p. 8)

- 205 Rossi-Hansberg E., Sarte P.-D., Trachter N. Diverging Trends in National and Local Concentration. Working Paper. 2018 <https://www.princeton.edu/~erossi/DTNLC.pdf>
- 206 Matej Bajgar, Giuseppe Berlingieri, Sara Calligaris, C. C. and J. T. (2019). Industry Concentration in Europe and North America (OECD Productivity Working Papers). Retrieved from <https://doi.org/10.1787/24139424>
- 207 Andrews, D., P. Gal and W. Witheridge (2018), "A genie in a bottle?: Globalisation, competition and inflation", OECD Economics Department Working Papers, No. 1462, OECD Publishing, Paris, <http://dx.doi.org/10.1787/deda7e54-en>.
- 208 Calligaris, S., C. Criscuolo and L. Marcolin (2018), "Mark-ups in the digital era", OECD Science, Technology and Industry Working Papers, No. 2018/10, OECD Publishing, Paris, <http://dx.doi.org/10.1787/4efe2d25-en>
- 209 De Loecker, Jan and Eeckhout, Jan, Global Market Power (June 2018). NBER Working Paper No. w24768. Available at SSRN: <https://ssrn.com/abstract=3206443>

As can be seen from Figure 1.13 the highest mark-up among the BRICS countries is exhibited by Russia (higher than 1.16). Brazil falls in the category of 1.5-1.75 mark-ups. China, India and South Africa exhibit average mark-ups in the lower range of 1.25-1.5.

The increase in mark-ups in 1980-2016 is distributed unevenly across regions: mark-ups have risen the most in North America and Europe, and the least in emerging countries in Latin America and Asia (Figure 1.14.).

Figure 1.14. Changes in mark-up, 1980-2016



Source: (De Loecker, Eeckhout, 2018, p. 13).

Here Russia stands out among other BRICS countries with an exceptionally high markup growth, but taking into account the period of measurement, the time coincides with the transformation from a planned economy to a market economy. Thus the substantial mark-up increase should not be too surprising.

As for the role of the digital sector in the rise of concentration levels, the evidence appears to be inconclusive. Bessen (2017) finds a general link between levels of concentration and the use of information technology. Mandel (2018)²¹⁰ points out that in the results of Autor et al. (2017) most of the rise in concentration in services happened in the 1990s and early 2000s, when the “superstar” digital companies such as Facebook, Google and Amazon either did not exist or were very small in size. Bajgar et al. (2019), studying 10 industries in Europe and in North America, have demonstrated, as mentioned, an increase in the level of concentration, but at the same have found no significant difference in the dynamics of the digital-intensive sectors. Calligaris et al. (2018), by contrast, have found that mark-ups are higher in digital-intensive sectors than in less-digitally intensive sectors, and that mark-up differentials between digitally-intensive and less-digitally intensive sectors also have increased significantly over time.

In conclusion, the rise of industry concentration and mark-ups appears to be a trend in most of the world. However, as this rise is observed on a highly aggregated level – that is at a level above the product and geographical boundaries of actual markets – it does not

210 Mandel M. Competition and Concentration: How the Tech/Telecom/ Ecommerce Sector is Outperforming the Rest of the Private Sector. Progressive Policy Institute, November 2018 <https://www.progressivepolicy.org/publications/competition-and-concentration-how-the-tech-telecom-ecommerce-sector-is-outperforming-the-rest-of-the-private-sector/>

strictly prove a rise in market power. Even if we do merge these phenomena together and consider industry concentration and mark-ups to approximate market power, the upward trend seems to be less pronounced in less developed countries, particularly in BRICS. As for the high concentration of digital markets, its role in the overall trend remains inconclusive, although it is hard to deny the “natural” tendency of digital markets to become concentrated.

1.4. Digital trade and markets: an international governance perspective

1.4.1. General context of digital trade

The World Trade Organisation (WTO) has long recognized that global digital trade²¹¹ is growing and creating new opportunities,²¹² and established a work programme on e-commerce.²¹³ It defined e-commerce as “the production, distribution, marketing, sale or delivery of goods and services by electronic means.”²¹⁴ At the end of 2017, ministers of trade of WTO member states discussed whether the WTO should start negotiations on digital trade. The members were unable to consolidate the several proposals on digital trade, including a call for the creation of a central forum on e-commerce negotiations. Although a group of 70 WTO members decided to start the work on consolidated e-commerce rules,²¹⁵ it is clear that consensus is far away.

That same year the BRICS countries signed the E-commerce Cooperation Initiative²¹⁶ and established the E-Commerce Working Group. The United Nations Industrial Development Organization (UNIDO) and the International Trade Centre (ITC) analysed the BRICS e-commerce ecosystem. Apart from challenges unique to each country, they identified a number of challenges common to all BRICS countries, including “bureaucratic procedures, unfavorable tax regimes, underdeveloped delivery infrastructure, a lack of e-commerce skills in SMEs, hindering their ability to compete with larger companies, and adequate mechanisms for ensuring privacy and security of data.”²¹⁷

In this regard, several tendencies in the changing global trade landscape can be outlined. First, digital trade does not simply mean automation of processes and stages typical for traditional trade. The very centers of value creation are changing, and new market mod-

211 Digital trade and e-commerce are used interchangeably for the purposes of this chapter.

212 See Declaration on Global Electronic Commerce adopted on 20 May 1998 at the WTO Ministerial Conference in Geneva, available at: https://www.wto.org/english/tratop_e/ecom_e/mindec1_e.htm.

213 Work programme on electronic commerce. Adopted by the General Council on 25 September 1998, available at: https://www.wto.org/english/tratop_e/ecom_e/wkprog_e.htm.

214 *ibid.*

215 New initiatives on electronic commerce, investment facilitation and MSMEs, available at: https://www.wto.org/english/news_e/news17_e/minis_13dec17_e.htm

216 BRICS E-Commerce Cooperation Initiative: https://www.brics2017.org/wdfj/201708/t20170831_1827.html

217 Status, Opportunities and Challenges of BRICS e-Commerce. A report prepared by UNIDO and ITC for submission of the BRICS Trade Ministers Meeting Shanghai, China 2 August 2017, available at: <http://www.intracen.org/publication/Status-Opportunities-and-Challenges-of-BRICS-e-commerce/>, p. 8

els emerge (e.g. the sharing economy, crowdsourcing). Further, the product life cycle in the digital environment involves storage, transfer and tracing of its digital twin – a virtual representation thereof reflecting the key characteristics of a real object. This means that e-commerce may involve trade in digital twins rather than the goods themselves. Beyond that, a pertinent regulatory problem is the fading boundary between goods and services and ensuing uncertainty in application of trade rules, as will be seen. The share of services in the production processes has increased. This includes engineering, design, research and other services which are often coordinated electronically. Thus, services are becoming an integral part of “smart goods” and the incorporated technology is increasingly protected by intellectual property rights. Companies are changing the focus of their main activities, removing boundaries between traditional sectors.

Second, as new roles and market participants emerge, one can notice the replacement of a number of players and the transformation of the intermediary layer. Producers begin to engage with consumers directly. This leads to an internal transformation of companies: they change their internal structures, reorganize their storage systems, decision-making systems, and channels of communication. Companies that manage to form their own ecosystems become more competitive. Thus, considerable market share of transportation, digital trade, and payments are now occupied by companies initially formed in the IT sector (e.g. Google or Yandex). Retailers that use digital trade channels start developing and implementing accompanying services, such as warehouse management, logistical networks, e-payments, and lending and insurance services.

Third, markets are dominated by global ecosystems (such as Alibaba or Amazon) as they ensure effective processes and fast interaction with partners, which is not available for small and isolated companies. Global ecosystems expand geographically claiming new sectors and market segments and attracting new participants both on the consumer and producer sides. This definitely brings challenges to digital trade governance.

Fourth, consumers are becoming active participants of digital trade. Trade platforms often do not own the goods they trade. The loyalty of their customers becomes their main asset. Trying to improve consumer experience, digital platforms and producers selling via internet propose new services, striving to accelerate supply chains and to create new trade channels. This is a two-way street that jointly creates value with platform participants. Approaches to building relations between producers and consumers are also undergoing profound changes, bringing data transfers to the forefront as consumers become co-producers and co-designers. They actively participate with their data, as well creating the content independently in the form of reviews, comments and complaints. The consumer also becomes a “seller” by providing data about his or her preferences and models of behaviour. Such data open massive opportunities for forecasting, and the improvement of consumer properties of goods, managing inventory, etc., turning them into selling assets that ensure the competitiveness of market participants. In the end, consumers and digital platforms determine what relationship models are to be formed in the digital environment. This requires international trade rules that encompass the new reality.

Such internet presence leaves a digital footprint, which includes browsing and shopping history, goods ratings, inquiries, opinions, emotions and the influence of community leaders. This data can serve as an invaluable asset for companies. Data analysis allows the creation of more attractive recommendations for consumers and the formation of targeted marketing strategies. Companies also use data to adjust production plans, reduce warehouse costs, and increasing business effectiveness. Development of successful models of data monetization becomes a vital issue for companies of all sectors.

1.4.2. Inter-jurisdictional data transfers: an overview

Given these developments, data is becoming the main resource and source of capitalization in digital trade. According to the World Bank, “firms need a free flow of data to operate across national borders, especially as production processes become more fragmented and goods and services become more digitized.”²¹⁸ Between 2005 and 2014 the volume of cross-border data flows has increased 45 times and added USD 2.8 trillion to world GDP, surpassing global trade in goods.²¹⁹ The explosive growth is ongoing.²²⁰ As argued in the note by the UNCTAD Secretariat:

Digital data are becoming an essential input in decision-making, production processes, transactions and relationship management across an ever-increasing swath of the agricultural, manufacturing and services sectors. As the digital economy evolves further, data will become even more inextricably interwoven with all aspects of the world economy, including the functioning of the Internet, global value chains and international trade.²²¹

The provision of communication, health, education, retail, tourism, entertainment or financial services on an international basis naturally leads to cross-border data flows. The increase in the role of data and data flows has been reflected in the servicification²²² of production allowing producers to increase added value and create sustainable relations with consumers. Therefore, there is a close linkage between international trade in services – in the form of the digital provision of international services – and the collection of data.²²³

218 Reaping Digital Dividends: Leveraging the Internet for Development in Europe and Central Asia. World Bank, – 2017. – P. 146. – URL: <https://openknowledge.worldbank.org/bitstream/handle/10986/26151/9781464810251.pdf>.

219 Digital Globalization: the new era of digital flows. McKinsey Global Institute, – 2016. – P. 75, 77. – full report available at: <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows>

220 Globalization in Transition: The Future of Trade and Value Chains. McKinsey Global Institute, 2019. p. 14.

221 The value and role of data in electronic commerce and the digital economy and its implications for inclusive trade and development. Note by the UNCTAD secretariat. Doc. № TD /B/EDE/3/2. 23 January 2019. – P. 5.

222 Sébastien Miroudot and Charles Cadestin, ‘Services in Global Value Chains: From Inputs to Value-Creating Activities’ (2017) OECD Trade Policy Papers No. 197.

223 Aaditya Mattoo and Joshua P Meltzer, ‘International Data Flows and Privacy: The Conflict and Its Resolution’ (2019) 21 Journal of International Economic Law 769, 770.

Not all cross-border data flows bring direct information about trade. Data flows can provide information on markets or can coordinate production processes. However, barriers which hinder cross-border data flows inevitably influence digital trade,²²⁴ as will be discussed in the next section.

1.4.3. International regulation of the digital economy

1.4.3.1. Regulation of cross-border data flows

1.4.3.1.1. Data protection

Data management is a new feature of the digital economy. The change in the value structure, the measurement of the potential value of data and the increase in the weight of digital services in production are new challenges for regulators. The growth of cross-border data flows raises the issues of data localization and extraterritorial application of legislation on personal data protection, emphasised in Section 1.7.5. Countries and international institutions are concerned about ensuring personal data protection not only in their own territories but also in cross-border data transfers. However, according to some estimates, the negative effects of data flow restrictions on economic growth outweigh all positive effects of data protectionism.²²⁵ The possible potential costs of data flow restrictions, particularly data localization requirements, include limited access to digital commercial networks, limited abilities for companies to work with Big Data and a negative influence on the productivity and competitiveness of companies.²²⁶

The EU has adopted some of the most advanced rules on cross-border data flows, and also promotes its approaches abroad.²²⁷ The two main regulatory acts are the Regulation on the free flow of non-personal data²²⁸ and the General Data Protection Regulation (GDPR).²²⁹ Thus, the EU provides for regulatory approaches to both personal and non-personal data.

The Regulation on non-personal data ensures the free flow of non-personal data across borders (the ability to store and process data in any EU country); the accessibility of such

224 See e.g. William J. Drake, Background Paper for the workshop on Data Localization and Barriers to Transborder Data Flows, 14-15 September 2016, The World Economic Forum, Geneva, available at http://www3.weforum.org/docs/Background_Paper_Forum_workshop%2009.2016.pdf

225 Meltzer J.P., Lovelock P. Regulating for a Digital Economy: Understanding the Importance of Cross-Border Data Flows in Asia // The Brookings Institution, Working Paper 113. 2018.

226 *ibid.*

227 See e.g. Horizontal provisions for cross-border data flows and for personal data protection (in EU trade and investment agreements), available at: http://trade.ec.europa.eu/doclib/docs/2018/may/tradoc_156884.pdf.

228 Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union.

229 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) // Official Journal of the European Union. 2016. L 119/1.

data for regulatory control (competent authorities retain access to data even when they are located in another state or processed in the cloud); easier switching between cloud service providers (by encouraging the development of self-regulatory codes of conduct); and full compatibility and synergy with cybersecurity measures.

Nevertheless, the following issues – essential for the data economy as identified by the European Commission – are not yet comprehensively addressed:

- data access and transfer (whether ‘ownership’ rights exist on non-personal data generated as part of a business process or *de facto* in the possession of a business; the conditions of usability and access to such data);
- liability (how to provide certainty to both users and manufacturers of data technologies and services in relation to their potential liability);
- partially – portability, interoperability and standards (how non-personal data exchange and competitive data markets could be stipulated).²³⁰

The reason for that lies in differences in market maturity, among other issues. Barriers for data flows have been largely identified and narrowed down to the forced storage or processing of data within a geographical area or IT environment.²³¹ The implications of other data issues are not yet clear and they have a different source: “disruptive business models emerging from the digital transformation of the industry, technological advances and a fast-evolving data market.”²³²

The GDPR is aimed at giving greater control to individuals over their personal data, simplification of the regulatory environment for international business and the improvement of business opportunities by facilitating the free flow of such data. However, the GDPR has a considerable impact on third countries, which is often negative especially in the case of less developed countries. There are clear economic and trade opportunities for less developed countries, especially those relying on exports of services: restrictions on data flows affect them in particular.²³³ This is due to the high compliance costs with the new requirements as data restrictions raise the cost of the trade transactions.²³⁴

The extraterritorial reach of EU regulations for the provision of international services is a technique to impose EU requirements abroad, the inclusion of equivalence clauses being an example of the requirements’ inherent flexibility.²³⁵ The existence of inter-

230 Commission Staff Working Document on the free flow of data and emerging issues of the European data economy accompanying the document Communication Building a European data economy {COM(2017) 9 final}.

231 Commission Staff Working Document Impact Assessment accompanying the document Proposal for a Regulation of the European Parliament and of the Council on a framework for the free flow of non-personal data in the European Union {COM(2017) 495 final} {SWD(2017) 305 final}, p. 3.

232 *ibid.*

233 UNCTAD, ‘Enhancing Productive Capacity through Services’ (United Nations 2019) Note by the UNCTAD Secretariat TD/B/C.I/MEM.4/20 13–14; Mattoo and Meltzer (n 223) 770.

234 Nivedita Sen, ‘Understanding the Role of the WTO in International Data Flows: Taking the Liberalization or the Regulatory Autonomy Path?’ (2018) 21 *Journal of International Economic Law* 323, 323.

235 Joanne Scott, ‘Extraterritoriality and Territorial Extension in EU Law’ (2014) 62 *American Journal of Comparative Law* 87, 117.

national commitments taken by the third country is one of the factors considered by the EU Commission to verify whether there is an adequate level of protection for data flows.²³⁶ However, this flexibility may allow a certain degree of inconsistency in the EU evaluation, which is essentially unilateral.

Box 1 – India and EU Privacy Regulation

India is an important exporter of software and IT-enable services. Most part of the provision of those services is cross-border and a smaller fraction is provided through the presence of a company (investment) or individuals outside India.

The EU has not deemed India's privacy legislation adequate according to its required levels. India has consciously chosen a balance that emphasises economic and trade opportunities over privacy. As an example, it is considered that the access to consumer credit history facilitates the provision of and resort to financial services, as digital inclusion is key for poor Indian citizens.

The enactment of a stringent national law in India would also submit all domestic companies to the same requirements, which is costly. The adoption of specific schemes (Binding Corporate Rules-BCRs and Standard Contractual Clauses-SCCs) is extremely expensive and takes time to implement. The result is that India's international trade is severely restricted due to EU rules.

Source: Adapted from Mattoo and Meltzer (2019).²³⁷

Therefore, the balance between data protection and trade promotion has not yet been effectively sorted out on the global or regional level. This is especially vivid in the example of mixed data sets. Most of the times data sets consist of both personal and non-personal data with the prevalence of the latter. Application of stricter personal data rules to such sets of data can limit economic effects and will have a particularly adverse effect on developing countries and smaller companies to comply with such rules. The EU's internal approach, for instance, is to apply personal or non-personal rules respectively in case such data sets can be easily separated.²³⁸ However if such data are inextricably linked, the non-personal rules "shall not prejudice the application of the [GDPR]."²³⁹

The fact is that data protection legislation affecting international trade has to adhere to WTO rules. Brazil, India and South Africa are founding members of the WTO, since 1 January 1995; China acceded on 11 December 2001 and Russia, on 22 August 2012. All BRICS countries are now WTO members and subject to WTO agreements.²⁴⁰ Although Russia has transferred part of its regulatory competences to the Eurasian Economic

²³⁶ Mattoo and Meltzer (n 223) 775.

²³⁷ *ibid* 777–779.

²³⁸ Art.2(2) Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union.

²³⁹ *ibid*.

²⁴⁰ Marrakesh Agreement Establishing the WTO (15 April 1994).

Union,²⁴¹ the rules adopted on the supranational level must still conform to WTO law.²⁴²

However, WTO rules are organised in the categories of “goods”, “services” and “intellectual property” and data flows challenge those categories, as argued in section 1. This framework was inherited from the Uruguay Round, one of the most difficult and complex negotiations that have ever taken place. All the trade commitments and concessions followed those categories and are reflected in the so-called *schedules*. The founding rights and obligations of national treatment, most favoured nation and reciprocity refer to them. This took place though before the digital revolution. Through path dependence, international governance still uses those categories even in the new regional trade agreements, but there are visible changes, such as the e-commerce chapters, as will be seen.

Beyond the GATT,²⁴³ the WTO rules have acted as “enabling data flows by liberalising infrastructure” by initially boosting value chains for IT trade through the Information Technology Agreement.²⁴⁴ Moving forward, rules that impact international trade of “smart goods” – incorporating data flow-dependent services (e.g. smartphone, Internet of Things) – might also be subject to the WTO regulation of services²⁴⁵ and intellectual property.

Breaches in the WTO rules may arise from *de jure* discrimination (e.g. local data storage or production requirements) or *de facto* discrimination (e.g. privacy or data protection laws to protect citizens) resulting from measures that limit the ability of data to move globally.²⁴⁶ In this line, it is argued that some aspects of data protection and firewall legislation do not comply with the General Agreement of Trade in Service – GATS rules.²⁴⁷

241 Eurasian Economic Union (EAEU) is an international organization of regional economic integration that seeks to create a common market for goods, services, capital and labour. It has been established on 1 January 2015 and the member states are Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia. See <http://www.eaeunion.org/?lang=en>.

242 Art.2(1) of the Treaty on the Functioning of the Customs Union within the Multilateral Trading system of May 19, 2011, available at: https://www.wto.org/english/thewto_e/acc_e/kaz_e/WTACCKAZ69_LEG_1.pdf. The treaty has been incorporated into the legal system of the Eurasian Economic Union by the means of the Protocol on the Functioning of the Eurasian Economic Union within the Multilateral Trading System, which is Annex 31 to the Treaty on the Eurasian Economic Union, available at: https://docs.eaeunion.org/docs/en-us/0017353/itia_05062014_doc.pdf.

243 General Agreement on Tariffs and Trade (15 April 1994) Marrakesh Agreement Establishing the WTO Annex 1A 1867 UNTS 183 (GATT).

244 See Information Technology Agreement – ITA (13 December 1996) and see Mira Burri, ‘The Governance of Data and Data Flows in Trade Agreements: The Pitfalls of Legal Adaptation’ (2017) 51 University of California Davis Law Review 65, 77–80.

245 Sen (n 26) 330–331.

246 *ibid* 325.

247 General Agreement on Trade in Services (15 April 1994) Marrakesh Agreement Establishing the WTO Annex 1B 1869 UNTS 183 (GATS).

Table 1.4 Possible Breaches and Defences in the GATS

Provision	Examples of Breach	Possible Defences
Most favoured nation treatment – Art. II	<i>De facto</i> discrimination among WTO members in relation to data flows	- Public morals or public order – Art. XIV (a) - Secure compliance with laws and regulations Art. XIV (c)
Mutual recognition – Art. VII	Not providing adequate opportunities for negotiation of mutual recognition agreements concerning data	(i) prevent deceptive or fraudulent practices (ii) protection of the privacy of individuals
Market access limitations – Art. XVI	Ban on cross-border transfer of data – equivalent to a ban in the provision of certain cross-border services (<i>zero quota</i>)	PLUS (chapeau) art. XIV no arbitrary or unjustifiable discrimination or disguised restriction - Security exception (essential security interests) ²⁴⁸ – Art. XIV <i>bis</i>
National treatment – Art. XVII	<i>De jure</i> differential data treatment related to national compared to foreign produced services	

Source: Adapted from Mattoo and Meltzer²⁴⁹ and Sen²⁵⁰

States with data legislation and firewalls may justify their measure using the defenses, as stated in the third column of Table 1.4.. However, they face the high hurdle of the test of the *chapeau* of art. XIV: all the restrictive data measures have to be consistently applied among the WTO members. A state cannot condition market access to the requirements of regulatory cooperation, if this is not done consistently.²⁵¹ The takeaway is that whenever states desire to use regulatory cooperation as criteria for allowing data flows, they must ensure an objective and coherent determination of the outcome of the cooperation (e.g. actual treaties or effective assurance mechanisms).

1.4.3.1.1.1. Economic regulation

The current status of international governance in data flows connects to the regulation of trade in goods, services and intellectual property as seen above. Domestic laws, regulations and requirements on data cannot result in discrimination among foreign digital

248 Most recently, the WTO Panel has decided that the national security exception in the GATT art. XX is not self-judging but requires an objective assessment of the circumstances and has to be done in good faith. WTO, Russia: Measures Concerning Traffic in Transit – Panel Report (5 April 2019) WT/DS512/R [7.102-7.104]; [7.132]-[7.135] and [7.138-7.139].

249 Mattoo and Meltzer (n 16) 777-782.

250 Sen (n 26) 336.

251 WTO, Argentina: Measures Relating to Trade in Goods and Services – Report of the Panel (30 September 2015) WT/DS453/R [7.761], [7.764]. The AB analysis is more ambiguous, since likeness between non-cooperative and cooperative countries was not established. WTO, Argentina: Measures Relating to Trade in Goods and Services – Report of the Appellate Body (14 April 2016) WT/DS453/AB/R.

goods (e.g. “smart goods”) or between foreign and national digital goods.²⁵²

When it comes to the conformity of these measures with the GATS market access and national treatment provisions, the first step is to figure out whether these new digital services are already included in the schedules, as a technology neutrality argument would suggest.²⁵³ Countries only classified and divided the different services in the schedules of the GATS for the purposes of liberalisation. A functional approach to the classification of services – focussed on the function achieved by the service – leads to more legal certainty and constructive liberalisation of services.²⁵⁴ In this regard, there are truly no new services, but just different ways to supply the service and the debate should focus on whether the data regulatory measure affects the supply of services, even if it regulates digital goods.²⁵⁵ In any case, an amendment in the WTO classification system – for example, to CPC Version 2.1 – might provide clarity to determine the sectors to liberalise in the future.²⁵⁶

Beyond the *status quo*, some solutions for the economic regulation of data flows under the framework of the WTO have been put forward and include:

- Recognition Agreements: GATS art. VII – members’ recognition of the protection standards of the others on a bilateral basis;
- Offering transparency and predictability on data flows as additional commitments: GATS art. XVIII – members’ unilateral offer;
- Common principles incorporated in a WTO Reference Paper on Privacy – similar to the *binding* WTO Telecommunications Paper.²⁵⁷

A way forward to address the regulation of data flows under the framework of the GATS WTO is the use of a data differentiated approach. GATS commitments do not differentiate between the types of data flows inherent to the provision of services. Thus, this approach involves different regulation according to the type of data (e.g. personal data, company data, business data, social data). Greater liberalization could ensure market access and national treatment for some types of data (e.g. company data) while maintaining regulatory autonomy in relation to other types of data (e.g. personal data). This could be achieved by the assumption of horizontal commitments in the schedules on certain types of free data flows, as suggested by Sen.²⁵⁸

There are several common justifications for data localisation measures, among them:

252 GATT art. I(1) and art. III(1) c/c III(4).

253 WTO, US: Measures Affecting the Cross-Border Supply of Gambling and Betting Services – Report of the Panel (10 November 2004) WT/DS285/R [6.285]. See also WTO, China: Certain Measures Affecting Electronic Payment Services – Report of the Panel (31 August 2012) WT/DS413/R.

254 Ines Willemyns, ‘GATS Classification of Digital Services – Does “The Cloud” Have a Silver Lining?’ (2019) 53 Journal of World Trade 59, 71.

255 *ibid* 80.

256 Sen (n 26) 342.

257 Mattoo and Meltzer (n 223) 787.

258 Sen (n 245) 343–347.

foreign surveillance, domestic law enforcement, individual privacy and security, economic development and internet control.²⁵⁹ However, from the point of view of international trade governance, data localization is seen more as a barrier to digital trade than an instrument of jurisdictional control. The restriction of internet access and data flows to protect domestic companies is often seen as a form of digital protectionism.²⁶⁰ A change in this mindset would require an adjustment to the current rules. A ban on localization measures could be incorporated as an horizontal or additional commitment in the schedules of the WTO members that desire to do so, to signal credibility towards other members.

Box 2 – Russia and data localisation.

Russia's requirements on local storage of data are in force since 2015. The data localization provisions may have been driven by national security and fiscal objectives. There are important costs for their implementation involving the adaptation of infrastructure of companies, but it is still debatable whether it substantially enhances security and protection of data subjects or imposes losses to the economy²⁶¹. *LinkedIn* was blocked in Russia due to the failure to comply with those requirements.

Since its WTO accession, Russia liberalised the relevant sectors under the GATS agreement as there are no limitations on market access for digital, IT or data storage, processing and transmission services in Russia *schedules*. Therefore, some have sustained that there may be a potential violation of national treatment and market access obligations.

The exceptions in the GATS require that the stated goals of the measure (protect citizens' data from unlawful access) are actually achieved, which is debatable as there is no prohibition to transfer the data abroad. Some argue that it must be established that the storage inside the country is more secure than outside for the GATS exception to apply.

Source: Sen²⁶²

As WTO rules and trade agreements regulate "intellectual property" they also shape the regulatory environment of data flows.²⁶³ The TRIPS²⁶⁴ requires members to ensure the protection of copyrights, patents, trademarks, layout-designs of integrated circuits and undisclosed information. Intellectual property chapters in trade agreements may include "TRIPS-plus" and "TRIPS-extra" provisions, such as ensuring the implementation of technical protection measures (TPMs) and the responsibility of internet service providers.²⁶⁵ Company data is usually protected by intellectual property rights such as trade-

259 Anupam Chander and Uyen P Le, 'Data Nationalism' (2014) 64 Emory Law Journal 677.

260 Joshua P Meltzer, 'Governing Digital Trade' (2019) 18 World Trade Review S23 46-48.

261 Alexander Savelyev, 'Russia's New Personal Data Localization Regulations: A Step Forward or a Self-Imposed Sanction?' (2016) 32 Computer Law & Security Review 128.

262 Sen (n 245) 337.

263 Burri (n 244) 68; 100.

264 Agreement on Trade-Related Aspects of Intellectual Property Rights (15 April 1994) Marrakesh Agreement Establishing the WTO Annex 1C 1869 UNTS 299 (TRIPS).

265 Burri (n 36) 105; 111-113.

mark and trade secrets.²⁶⁶ For example, the CPTPP highlights the protection of trade secrets “including by means of a computer system”.²⁶⁷ This may be further regulated by cybersecurity laws. However, BRICS countries do not seem to play a major role in those new initiatives and have generally been defensive when it comes to intellectual property protection.

Box 3 – China Cybersecurity Law in the WTO

China measures adopted and under development relating to its Cybersecurity Law have been discussed in the WTO Council for Services throughout 2018 and 2019. Jurisdictions such as the United States, Japan and the EU have sought clarification due to its possible adverse effect in services supplied through a commercial presence and on a cross-border basis. Members have sought explanation on the conformity with the GATS of the obligation of foreign operators to store data domestically and to conduct security assessment on cross-border transfers. Members are unsure about the meaning of legal terms such as “critical data” and “critical information infrastructure”.

On the other hand, China has argued that it faces great challenges to national cybersecurity and aims to protect societal public interests. China is still in the process of drafting and implementation of its domestic framework and is ready to receive suggestions and inputs.

Source: WTO Council for Trade in Services – Report of the Meeting 7 December 2018 – S/C/M/137

Another recent topic that touches upon international economic regulation is the range of issues arising out of the trade war between China and the United States. They have changed the dynamics of international digital governance, and consequently, data governance. As the two major world trade powerhouses, both countries are more than able to set a bilateral governance system to rule their relations, to the detriment of the World Trade Organisation forum. The trade frictions of the last five years reached a peak stage of tit-for-tat retaliation. This involved all the repertoire of trade relations and sanctions (trade in goods, trade in services, investment and intellectual property) and has an important digital component, as highlighted in Section 1.7.8.

Box 4 – Trade war and restrictions to investments

A special chapter of that trade war is the US decision to ban Huawei’s equipment from its networks. As a result, Google had to pull Huawei’s Android licence. While Android would still run on Huawei’s phone, Google would not provide technical support and collaboration for Huawei phones. There are obvious implications for competition from the decision of Google not to pair with Huawei. This may lead to an impairment in innovation to the detriment of consumers, for example, in the design of smartphones. However, the latest developments of the trade talks between both countries is that US will issue special licences for companies that want to trade with Huawei.

²⁶⁶ Sen (n 245) 345.

²⁶⁷ Comprehensive and Progressive Agreement for Trans-Pacific Partnership (signed 8 March 2018) – CPTPP art. 18.78.

This might mean that Google may be able to apply for this special licence. In the UK, the authorities considered that there were no grounds to prevent Huawei from getting involved in its 5G networks, despite of US pressure.

Source: That Global Ban on Huawei? Not So Much Anymore WIRED <https://www.wired.com/story/global-ban-huawei-not-so-much/>

1.4.3.2. International regulation of digital consumer protection

Although e-commerce is gradually absorbing traditional trade, trade via traditional channels is still dominant. Nevertheless, there is a trend showing the outflow of consumers from traditional trading centers to online platforms, which is also true for BRICS countries. For example, in Russia in 2018 the growth in B2C sales through digital trade channels was 22%, and the growth of purchases through foreign internet platforms was 24%.²⁶⁸

E-commerce chapters in trade agreements also affect the regulation of data flows. Reflecting the lack of progress of the WTO in the area,²⁶⁹ they highlight the non-differentiation of treatment between digital products and their offline equivalent and include a duty free moratorium on international trade by electronic transmission. They may also include rules related to IT standards and interoperability, cybersecurity, payments and electronic signatures and establish a common ground for the digital marketplace, such as the fair use of the internet for e-commerce, network neutrality and restrictions on data localization and no requirement of transfer of source codes.²⁷⁰

It is in those chapters that the international governance of digital consumer protection is found. A system of governance for e-commerce depends on building online trust: increased consumer confidence will stimulate cross-border electronic transactions.²⁷¹ Global regulation for digital consumer protection would naturally contribute to system-wide trust.²⁷² As most consumer protection is nationally enforced, international regulation will promote convergence between national protection standards, identify functional equivalence or compatibility or promote cooperation between enforcement agencies.

The nonexistence of WTO regulation on consumer protection does not mean that the topic is not discussed in the e-commerce negotiations, as noted above. In this forum, some WTO proposals on online consumer protection were brought. Russia, for instance,

268 Rynok elektronnoi trgovli v Rossii: sostoyanie i prognoz 2014-2018 [E-Commerce in Russia: Status and Forecast 2014-2018]. E-Commerce Russia, available at <http://ecomrussia.ru/dlya-biznesa/issledovaniya/obshhie-dannyye-o-sostoyanii-ryinka-rossii/obzor-sostoyaniya-ryinka-elektronnoj-torgovli-v-rf-2018-g.html>.

269 However, see, recent communications from China (9 May 2019) WTO/INFO/ECOM/32, Brazil (30 April 2019) WTO/INFO/ECOM/27 and the EU (26 April 2019) WTO/INFO/ECOM/22, available at: https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S001.aspx

270 Burri (n 244) 113-117; 101-102.

271 Sen (n 26) 345.

272 Ioannis Lianos and others, 'The Global Governance of Online Consumer Protection and E-Commerce: Building Trust' (World Economic Forum 2019) White Paper.

has expressed interest to ensure security of cross-border e-commerce and to create a digital platform to share information on unsafe online goods and services. It has also recognised the importance of agency cooperation to prevent dishonest activity in e-commerce.²⁷³

The topic is therefore considered to be “WTO-extra”. In this regard, regional agreements may encourage or incentivise regulatory convergence for the protection of consumers between the jurisdictions involved; commitments on cooperation among consumer agencies can also be present in those agreements.²⁷⁴ A component of that cooperation could take the form of technical assistance from better developed jurisdictions towards less developed ones.²⁷⁵ Consumer protection provisions may be powerful and truly precipitate change in domestic policies, although this highly depends on how they are phrased.²⁷⁶ Soft law initiatives may shape convergence of principles in a move towards “principles-based” consumer regulation on a global level; this is in consonance with dynamic performance standards and the interaction between traders and regulators in light of technological developments.²⁷⁷

1.4.4. Prospects for the future: global digital regulation and competition policy

The long-term trend in digital trade is erasing the boundaries between goods, services and intellectual property. More goods are being sold bundled with a mandatory set of services, which effectively constitute the main object of trade. In addition, digital twins are becoming a type of good. In essence, we are moving from the consumption of goods and services to the consumption of technologies, which determine the value of services regarding the usage of goods. Profound changes are also taking place in the value chains: new models provide for “compression” of trade value chains, reduction of the number of intermediaries between consumers and producers, and transformation of the internal processes of all participants in the supply chain and marketplace. Markets are increasingly dominated by global ecosystems, and consumers are progressively more active participants in digital trade. Data is effectively becoming the new fuel of the global economy. These changes raise profound regulatory challenges for global digital trade and cross border data flows, where regulators must confront competing interests including those revolving around data protection and economic development.

Some are incredulous of the suitability of trade forums such as the WTO to regulate digital trade issues – and consequently, data issues – and recognize its inherent limitations.²⁷⁸ On the other hand, international trade governance has achieved a great deal of institutionalization and some results in terms of enforcement. It would be unwise to avoid exploring the potential of this forum to set and enforce rules, in favour of “soft

273 *ibid* 13.

274 *ibid* 15–16.

275 *ibid* 17.

276 Burri (n 244) 102.

277 Lianos et al. (n 69) 11–12; 17.

278 Burri (n 36) 129.

law” alternatives or principles or private standards.

In any case, regulatory cooperation seems to be the way forward for the governance of the digital economy and regional trade agreements may be laboratories for interaction.²⁷⁹ New approaches can be found in the CPTPP and in the new US-Mexico-Canada agreement. Those solutions may constitute points for convergence for future regulation. This requires a parallel agenda on building up the confidence of domestic regulators to allow data to leave the jurisdiction without undermining regulatory goals.²⁸⁰ Alternatively, one could say “multilateralism” and “regionalism” may not work well for the digital economy and “unilateral” approaches coupled with “bilateral” recognition agreements could provide the basis for a pragmatic and reciprocal approach for economic cooperation. However, there is a strong claim that the model for the future will not be based on unilateralism but on persuasion and a global community of shared approaches with a structured engagement for coordination and harmonization: the future of data trade will turn on concessions and compromise.²⁸¹

It is hard to know which model would fully reflect the interest of the BRICS countries, as they are the ones that have adopted some of the data measures under international scrutiny (see Boxes II and III), though some may lose out from data restrictions imposed by other countries (see Box I). The cautious approach by the BRICS countries to embark on these initiatives may change. The dynamic needs of the digital economy in those countries could soon shape a new common discourse in the area.

1.5. A brief description of digital technologies

1.5.1. Artificial Intelligence

In 2016 the founder and executive chairman of the World Economic Forum Klaus Schwab named AI as one of the main forces of the fourth industrial revolution.²⁸² According to some calculations, the GDP growth contribution of AI will be no less

279 *ibid* 132.

280 Joshua P Meltzer, ‘Governing Digital Trade’ (2019) 18 *World Trade Review* S23 48. governments and regulators have to determine how to benefit from these developments while maintaining the integrity of their domestic regulations. Currently, governments are increasingly restricting global data flows and requiring data localization, undermining the economic benefits of digital trade. To address this trend will require a system of digital trade governance that has two key elements. One element is new digital trade rules, some of which exist in the WTO and others which are being developed in free trade agreements. The other is international regulatory cooperation to develop standards and mutual recognition agreements in areas such as privacy and consumer protection that gives domestic regulators confidence that allowing data to leave their jurisdiction will not undermine achievement of domestic regulatory goals. In the absence of such regulatory cooperation, governments are likely to continue to restrict data flows, relying on the exceptions provisions to their digital trade commitments.»»DOI»:»10.1017/S1474745618000502»,»ISSN»:»1474-7456, 1475-3138»,»language»:»en»,»author»:»[{«family»:»Meltzer»,»given»:»Joshua P.»}],»issued»:»[{«date-parts»:»[[«2019»,4]]}],»schema»:»https://github.com/citation-style-language/schema/raw/master/csl-citation.json»}

281 Paul M Schwartz and Karl-Nikolaus Peifer, ‘Transatlantic Data Privacy Law’ [2017] *Georgetown Law Journal* 115, 174–176

282 Klaus Schwab, *The Fourth Industrial Revolution*, World Economic Forum, 2016.

than 5% in 2030, and much larger in the case of more advanced countries.²⁸³ Opportunities are many, sometimes not even foreseen, however, there are also multiple challenges (such as ethical, legal and cybersecurity), which depend on our ability to understand, control and predict AI-based systems.²⁸⁴

To address both opportunities and challenges, many jurisdictions have adopted strategies of AI development.²⁸⁵ The BRICS countries have also been working in this direction. In 2017 China adopted one of the most comprehensive strategies “A Next Generation Artificial Intelligence Development Plan” setting out an ambition to lead the world in AI by 2030.²⁸⁶ India in its 2018 discussion paper on AI strategy is focusing on leveraging AI not only for economic growth, but also for social inclusion (“AI for all”).²⁸⁷ Russia, Brazil and South Africa do not yet have dedicated AI strategies. However, Russia is actively working on its national strategy on AI development.²⁸⁸ The Brazilian digital transformation strategy “E-Digital” of 2018 addresses digital transformation, including AI.²⁸⁹ South Africa’s “Intsimbi Future Production Technologies Initiative” launched in 2018 with the aim of advancing South Africa’s manufacturing sector also considers AI.²⁹⁰

There are various ways to define AI; one is proposed by Stuart Russell and Peter Norvig as “the designing and building of intelligent agents that receive precepts from the environment and take actions that affect that environment.”²⁹¹ AI dates back more than half a century (see Figure 1.14.), and its history saw both peaks of interest and almost full disappearance thereof. The rather recent increase in interest in AI is due to the developments in machine learning, advances in computing power, and data availability, which ensure the effective work of artificial neural networks on a large scale. Thanks to that, it is often possible to ensure attaining results without developing specialized software to solve a particular problem, including carrying out certain tasks to which there is no algorithmic solution, or which are hard to accomplish otherwise.

283 Sizing the Prize: What’s the real value of AI for your business and how can you capitalise? PricewaterhouseCoopers, <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf>.

284 See e.g. Max Craglia (Ed.) Artificial Intelligence: A European Perspective, European Commission, Joint Research Centre, Publications Office of the European Union, 2018.

285 For an overview see e.g. Tim Dutton, “An Overview of National AI Strategies” Medium (28 June 2018), <https://medium.com/politics-ai/an-overview-of-national-ai-strategies-2a70ec6edfd>.

286 http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm. Although China has a strong advantage in data availability for these purposes, there are multiple challenges. See e.g. Jeffrey Ding, “Deciphering China’s AI Dream: The context, components, capabilities, and consequences of China’s strategy to lead the world in AI”, Future of Humanity Institute, University of Oxford, 2018, available at <https://www.fhi.ox.ac.uk/deciphering-chinas-ai-dream/>

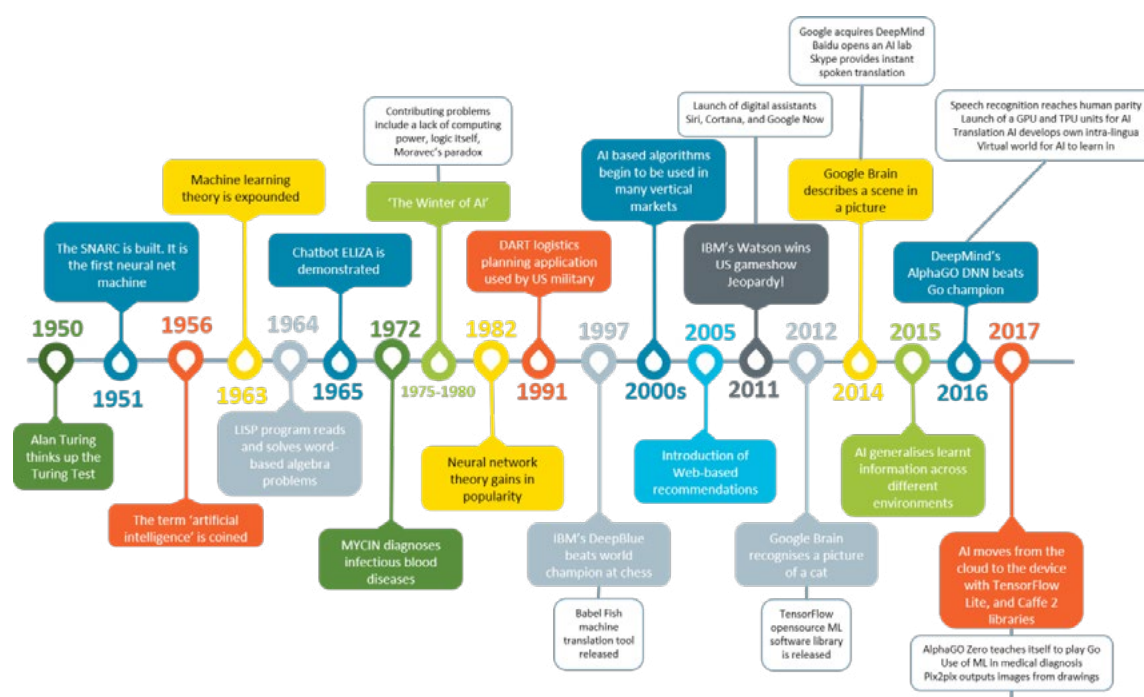
287 https://www.niti.gov.in/writereaddata/files/document_publication/NationalStrategy-for-AI-Discussion-Paper.pdf

288 <https://digital.ac.gov.ru/news/1073>

289 http://www.mctic.gov.br/mctic/export/sites/institucional/inovacao/paginas/politicasDigitais/arquivos/estrategia_digital/180629-E-Digital-English.pdf

290 <https://www.thedti.gov.za/editmedia.jsp?id=5480>

291 S. Russel & P. Norvig. Artificial Intelligence: A Modern Approach, (3d edition) Prentice Hall 2009.

Figure 1.14. AI timeline

Source: <https://www.innovationobservatory.com/node/243>.

The development of AI strives to transfer high-level processing of data from human beings to computers. AI can be used in order to find unobvious or hardly cognizable dependencies and patterns where it is difficult or unfeasible for humans to perform, as well as to run routine intellectual operations or labor-intensive transformation of information. At the same time, AI-based systems cannot currently provide substantial responses on the essence or cause-and-effect relationships of phenomena.

AI is commonly divided into two groups: artificial general intelligence,²⁹² or "strong AI",²⁹³ and applied or "weak AI". The former is a hypothetical artificial intelligence capable of performing any intellectual task and set its goals independently. It is therefore either comparable to human-level intellect or surpasses it. There is no technology close to it currently available, but there are no conclusive theoretical limitations for it to appear in the future. Availability of strong AI will have an unlimited scope of application. Weak AI, on the other hand, are applied systems designed to address specific tasks. Broadly speaking, these are all AI solutions available today. They are sometimes subject to the so called "AI effect" problem: as soon as a certain inconceivable result is achieved using AI, such a task is no longer considered an AI task. John McCarthy stated that "[a]s soon as it works, no one calls it AI anymore."²⁹⁴

292 N. Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford University Press, 2014), 22.

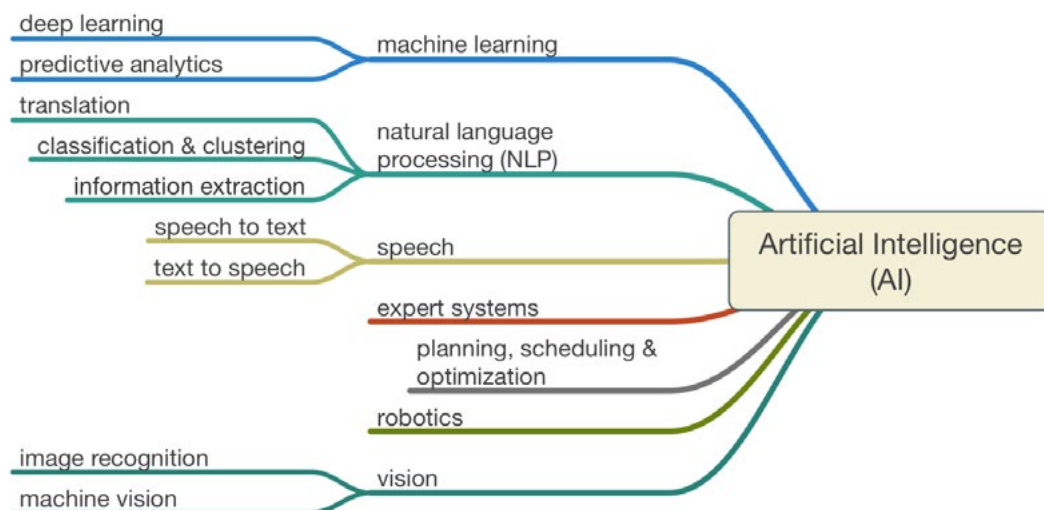
293 N.J. Nilsson, *The Quest for Artificial Intelligence: A History of Ideas and Achievements* (Cambridge University Press, 2009) 319.

294 Attributed in M. Y. Vardi, "Artificial Intelligence: Past and Future" (2012) 55(1) *Communications of the ACM* 5.

1.5.2. Machine Learning

Machine learning is one of the AI methods and deep learning is correspondingly a subset of machine learning (Figure 1.15.). Machine learning has become the major technological approach that defines the current state of AI. The essence of the technology is the creation of a database of study examples that a computer aligns to (self-learns), produces the rules, and therefore can correctly recognize and classify new incoming data. Thus, it is an ensemble of algorithms and approaches that allow computers to make conclusions on the basis of available data. Adding more study examples improves recognition results. The major technology behind it are artificial neural networks, which are statistical modelling techniques capable of learning sophisticated relationships, i.e. they modify their own code to find and optimise links between inputs and outputs.²⁹⁵

Figure 1.15. AI Mind Map



Source: Samrat Kar, AI Mind Map, available at:

<https://medium.com/ml-ai-study-group/ai-mind-map-a70dafcf5a48>

An example of considerable breakthrough in machine learning is Google DeepMind's AlphaGo, which was won by the South Korean Go champion Lee Sedol.²⁹⁶ Go is considered to be the most complex game in the world. Achieving this result was possible by using *deep learning* and *reinforcement learning*. Deep learning is applied to the learning methods of neural networks that use more than one buried layer, and therefore formally the word "deep" also indicates the multi-layer architecture of the neural network. Algorithms of this kind appeared long ago, but the computing power was low and could simulate only several hundreds of artificial neurons with one buried layer between input and output layers. Currently, for instance, voice recognition systems use up to 12 internal layers of neurons.

²⁹⁵ OECD (2019), Artificial Intelligence in Society, OECD Publishing, Paris, <https://doi.org/10.1787/eedfee77-en>, p. 28.

²⁹⁶ The Google DeepMind Challenge Match, AlphaGo, March 2016, available at: <https://deepmind.com/research/alphago/alphago-korea/>.

The uniqueness of deep learning is that the machine finds features on its own (key traits, which allow it to distinguish different classes of objects more easily) and structures such features hierarchically: simpler features make up more complex ones. There is no formal definition of deep learning as it combines a whole range of different technologies. Its feature is that it can cope with noisier data by increasing significantly the number of neural layers and neurons and the amount of data.²⁹⁷ In other words, deep learning is an analysis of previous and current data for the purposes of forecasting the future. Reinforcement learning, on the other hand, focuses on experience-driven sequential decision-making, meaning that agents take action to maximise a cumulative reward.²⁹⁸

Therefore, a computer learns on the examples and its own experience. For instance, AlphaGo first analysed 29.4 million moves and 160 thousand games of professional players and two copies of the programme started playing between each other adding more games to the study sample. Having played millions of games, the programme learned to assess the most beneficial placing of stones on the board to ensure victory.

Deep learning can be supervised and unsupervised. Supervised deep learning envisages compulsory learning using examples or learning samples. Unsupervised learning means that an AI-based system searches on its own. Initially, the former has been giving better results. Nevertheless, the prospects of the latter are higher as developers do not need to prepare the data and learning is not limited to available datasets. Thus, AlphaGo Zero using reinforcement learning and not using datasets derived from humans trained itself faster and was able to beat the original AlphaGo by 100 games to 0.²⁹⁹

Deep learning is currently part and parcel of research in voice recognition, image recognition, self-driving, medical state diagnostics and performing other complex tasks. Nevertheless, AI technologies using machine learning have distinctive features and limits. One of those is the inability of a machine to reconstruct the logic of adopting this or that decision. It limits substantially the application of AI in socially sensitive and strategic fields. Apart from that the success often depends on access to sufficient Big Data for learning (see the following section). A separate group of risks is related to the way the initial learning data is formed, which can include trends provoking displacement of the focus of decisions. There are some other technical problems inherent in machine learning which must be taken into account in the practical implementation of AI.

297 Max Craglia (Ed.) *Artificial Intelligence: A European Perspective*, European Commission, Joint Research Centre, Publications Office of the European Union, 2018, p. 21.

298 Ibid. See also OECD (2019), *Artificial Intelligence in Society*, OECD Publishing, Paris, <https://doi.org/10.1787/eedfee77-en>, p. 29.

299 D. Silver, J. Schrittwieser, K. Simonyan, I. Antonoglou, A. Huang, A. Guez et al. "Mastering the game of Go without human knowledge." *Nature* 550, 354-359 (19 October 2017). This has been further developed into a generalized version – AlphaZero. See D. Silver, T. Hubert, J. Schrittwieser, I. Antonoglou, M. Lai, A. Guez, M. Lanctot et al. "Mastering chess and shogi by self-play with a general reinforcement learning algorithm." *arXiv preprint arXiv:1712.01815* (2017).

1.5.3. Big Data

Big Data represents a new scale of datasets so voluminous that they exceed classical tools of analysis. The amount of data added to the global dataset every day is quantifiable at around 2.5 quintillion bytes per day³⁰⁰ on average and this number continues to grow. Consequently, it is extremely difficult to precisely define Big Data, as the relativity and changing aspect of this new scale of dataset make any order of magnitude or characteristic quickly obsolete. If the term “Big Data” dates from 1997 according to the Association for Computing Machinery,³⁰¹ the definition recognized by most scholars and business today is Gartner’s (2001): Big Data is “high-volume, high-speed and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation.”³⁰² Gartner’s definition is based on the enunciation of three broad dimensions of data processing, also called the 3 Vs, that help to understand the outlines of Big Data:

1. *High Volume*: It is the increase and significant size of the data volume that differentiates Big Data from conventional data analysis. This volume dimension is often considered to be the most relative. For instance, worldwide digital data have grown from 1.2 zettabyte³⁰³ per year in 2010 to 1,8 zettabyte in 2011, then 2,8 zettabytes in 2012 and will rise to 40 zettabytes in 2020.³⁰⁴
2. *High-Variety*: In addition to a quantity of information that surpasses conventional data analysis tools, the format of these data is also very different. These are not traditional relational data. These data are raw, semi-structured or even unstructured. These are complex data from web mining, text mining and image mining. Thus, these new and extremely varied forms of data cannot be treated with traditional tools directly.
3. *High-Velocity*: These growing data streams are in perpetual development and require real-time processing to avoid the obsolescence of the statistics obtained. This dimension can have a major importance in the treatment of Big Data by the stock market for example. In fact, computers that send purchase orders automatically must benefit from the information collected in real time to minimize the risk.

300 B. Marr “How Much Data Do We Create Every Day?”, Forbes.com, 21 May 2018, <https://www.forbes.com/sites/bernard-marr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/>

301 G. Press, “A Very Short History Of Big Data”, Forbes, 9 may 2013, <https://www.forbes.com/sites/gilpress/2013/05/09/a-very-short-history-of-big-data/#69c1ed6465a1>

302 D. Lanney, “Application Delivery Strategies”, <https://blogs.gartner.com/doug-lanney/files/2012/01/ad949-3D-Data-Management-Controlling-Data-Volume-Velocity-and-Variety.pdf>, Meta Group, 6 February 2001

303 1 Zettabyte equals 1,000,000,000,000,000,000 bytes.

304 J. Gantz. and E. Reinsel. 2011. “Extracting Value from Chaos”, IDC’s Digital Universe Study sponsored by EMC, 2011 <https://www.emc.com/collateral/analyst-reports/idc-extracting-value-from-chaos-ar.pdf>

Nevertheless, depending on their use of Big Data, companies, communities or researchers who use them accentuate the importance of one dimension or leave others on the side, and can even highlight the importance of new ones. That is the case with the growing importance of veracity³⁰⁵ and value³⁰⁶ that are new axes of definition and stakes of Big Data with the rise of fake profiles and fake information on the Internet.

Thus, all these dimensions are constitutive of Big Data's specificities. But these specificities are also the main issues in order to stock and use these complex data for the actors who wish to take advantage of the situation. Given the extent of the Big Data components, the benefits are multiple and form various activities.

Research is at the origin of Big Data analysis, and science benefits from it particularly. In medicine, for example, Big Data now makes it possible to decode the human genome in less than a day while it took 10 years to achieve it up to 2003.³⁰⁷ More recently, a Korean Project developed by the Korea University Medical centre started to be tested in hospitals in order to create a cloud based system to turn dispersed medical information into Big Data. This project is expected to cut the operation cost to one fifth and to help hospitals treat patients more efficiently. It shows how Big Data can both contribute to research at the very beginning of the scientific process but also at the very end, the individual scale.³⁰⁸ Other fields such as astronomy, aeronautics or meteorology also benefit heavily from the recurring patterns enlightened by the huge dataset that Big Data provides.

Big Data proves to be a formidable political weapon to understand voters' wishes during campaigns but also to highlight social media trends, target action plans more efficiently or even as part of monitoring and security procedures.³⁰⁹ For instance, in India, Big Data was used for the Bharatiya Janata Party for the 2004 elections campaign. Later on, Narendra Modi, the Indian Prime Minister even quoted Facebook as an inspiration. His move toward the mastery of Big Data is blatant with Aadhar: an ID system for India's 1.3bn residents that is required for almost every government service and which allows the state to use efficiently the citizen's profile with information at high rate of veracity.³¹⁰ However, the impact of data on modern elections is an issue everywhere on the planet, which has been underlined by firms like Cambridge Analytica Ltd and the scandals linked to it. Even if

305 Ali M. Al-Salim, Taisir E. H. El-Gorashi, Ahmed Q. Lawey, and Jaafar M. H. Elmirghani, "Greening Big Data Networks: The Impact of Veracity", 6 Dec 2018, <https://arxiv.org/ftp/arxiv/papers/1812/1812.10307.pdf>

306 Roger H.L. Chiang, Varun Grover, Ting-Peng Liang & Dongsong Zhang Guest Editors "Special Issue: Strategic Value of Big Data and Business Analytics", *Journal of Management Information Systems*, 2018, 383-387

307 P. Delort, "Harnessing data as a new source of growth: Big data analytics and policies", OECD, ICCP Technology Foresight Forum, 8 October 2017 http://www.oecd.org/sti/ieconomy/Session_3_Delort.pdf#page=6

308 "Cloud-based system to turn dispersed medical information into big data", *Korea Biomedical Review*, <http://www.korea-biomed.com/news/articleView.html?idxno=6317>, Consulted the 26th of August 2019 at 19:30 GMT

309 "Utah data Center", *Nsa.gov1*, <https://nsa.gov1.info/utah-data-center/>, Consulted the 3rd July 2019 at 19:30 GMT

310 "The world's most valuable resource is no longer oil, but data", *The Economist*, 6th May 2017, <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>

the direct impact of Cambridge Analytica on elections is still unclear, the fact that it has been involved in elections in Kenya, United Kingdom, Malta, Mexico, India, Australia, and the US, it shows how important data management and analysis has become in politics.³¹¹

Big Data is of paramount importance in the analysis of actions and behaviors and generates a boost of progress and production which gives the information a value in constant increase. According to the International Data Corporation, the weight of Big Data in the global market in 2020 is estimated at \$203 billion.³¹² Moreover, it is no coincidence that seven of the ten largest companies in the world in terms of market capitalization are technology companies and five of them (Amazon, Alphabet, Facebook, Alibaba, Tencent) rely massively on data treatment, mining and selling.³¹³ Big Data also enabled the elimination of intermediaries with the example of NATUs (Netflix, Airbnb, Tesla, Uber) and even Spotify that use Big Data to understand and adapt to customers behavior and thus reduce price by replacing human intermediaries.³¹⁴ Big Data affects many areas of the private sector, such as sports,³¹⁵ insurance³¹⁶ or the energy sector³¹⁷ where collecting data could improve performance and yield.

Nevertheless, the problems associated with Big Data are as numerous as its fields of application. It is therefore important to mention some of them briefly. The first and most well-known is data mining and the threat to privacy that it generates. Indeed, regulation of data protection is still developing and knowing that data is easily duplicable and usable by more than one person, it is difficult to assess who owns it and how. Snowden's revelations have generated an awareness at this level that has triggered a reaction by the public and the law.³¹⁸ Moreover, if the data are exploited more and more precisely, they become all the more valuable. Cyber security is therefore involved in all aspects related to Big Data. The last breaches of giants like Facebook in 2019 are highly publicized and quickly corrected, but the

311 Vito Laterza, "Cambridge Analytica, independent research and the national interest", *Anthropology today*, 1st of June 2018, pp1-2

312 "Double Digit Growth Forecast Worldwide Big-Data Business", *BusinessWire*, 3rd October 2016 <https://www.businesswire.com/news/home/20161003005030/en/Double-Digit-Growth-Forecast-Worldwide-Big-Data-Business>

313 "How to think about data in 2019", *The Economist*, 22nd December 2018, <https://www.economist.com/leaders/2018/12/22/how-to-think-about-data-in-2019>

314 Alina Sorescu, "Data-Driven Business Model Innovation." *Journal of Product Innovation Management* 34, no. 5, September 2017: 691-96; Bruno Teboul, « L'Uberisation, l'automatisation... Le travail, les emplois de la seconde vague du numérique. », Séminaire GE 90 « Big data et emploi : Principaux enjeux et conséquences en matière d'emploi », 2016.

315 B, Hutchins, "Tales of the digital sublime: Tracing the relationship between big data and professional sport", *Convergence*, 22(5), 2016, 494-509.

316 F, Corea, "Big Data and Insurance: Advantageous Selection in European Markets". *Data Science Journal*, 16, p.33 2017

317 Jacobus Herman "Using big data for insights into sustainable energy consumption in industrial and mining sectors", *Journal of Cleaner Production*, 197, pp.1352-1364. 2018

318 David Lyon, "Surveillance, Snowden, and Big Data: Capacities, consequences, critique", 9th July 2014 <https://journals.sagepub.com/doi/full/10.1177/2053951714541861>

data of hospitals, universities or small companies are much more vulnerable.³¹⁹ Entropy and the growing volume of data is also an issue as the Big Data collected lacks density. It means that only a minor part of Big Data is actually relevant and usable to draw trends and that the rest is not exploitable. All the inaccurate and unusable data contribute to “information overload” and “infobesity” and reduce the yield of Big Data analysis.³²⁰ Moreover, stocking a growing volume of potentially useless data has an important cost and environmental impact for no real return on investment. Finally, the situation of GAFAs (Google, Apple, Facebook, Amazon) raises questions as the data they collect allows them to set up economic, social and environmental actions but gives them a status close to monopoly that is hard to control with traditional antitrust procedures.³²¹ Thus, transparency, security and control seem to be the major challenges for big data now and in the near future.

1.5.4. Smart Data

It is important to understand that Big Data and Smart Data are not really two opposite concepts, but rather complementary. Smart Data is a way to explore and engage with the wideness of Big Data with a more strategic and restrictive approach. Indeed, the collection of Big Data makes it possible to benefit from a non-negligible sample of information but does not guarantee density and exploitability. Thus, the advantage provided by the volume dimension of Big Data disappears very quickly when information cannot be exploited because of data of little interest. For instance, according to the Electronic Business Group, Micropole and Qlik, 54% of French companies cite the scarcity of profile as a brake on the development of Big Data.³²² Thus, the policy of massive storage of unprocessed data can still be seen as an investment for multinationals such as GAFAs. Indeed, these companies have the computing power to make sense of low-density data and have the means to keep unnecessary data in the short term.³²³

Nevertheless, for smaller companies or for communities with fewer resources, storage represents a significant cost that must be offset by direct data exploitation.³²⁴ Thus, these companies, for their marketing campaigns for example or for their business development prefer to set objectives prior to the collection of data.

319 Ibid 23.

320 Saxena, Deepak, and Markus Lamest. “Information Overload and Coping Strategies in the Big Data Context: Evidence from the Hospitality Sector.” *Journal of Information Science* 44, no. 3, June 2018, 287–97.

321 “Big tech faces competition and privacy concerns in Brussels”, *The Economist*, 23rd March 2019 <https://www.economist.com/briefing/2019/03/23/big-tech-faces-competition-and-privacy-concerns-in-brussels>

322 Qlik, EBG, Micropole, “Baromètre Big Data 5 ans après”, 2018 <https://www.micropole.com/file.cfm?contentid=5459>

323 Thulara N. Hewage, Malka N. Halgamuge, Ali Syed, and Gullu Ekici, “Review: Big Data Techniques of Google, Amazon, Facebook and Twitter”, *Journal of Communications* Vol. 13, No. 2, February 2018

324 Bernard Marr, “Why most companies can deal with the data explosion?”, *Forbes.com*, 28th April 2016 <https://www.forbes.com/sites/bernardmarr/2016/04/28/big-data-overload-most-companies-cant-deal-with-the-data-explosion/#3be9ff3e6b0d>

As a consequence, we are witnessing a return to a more conventional analytics operating model where the data collected match the 3Vs of Big Data but also have a high rate of value and veracity because of the strategic research done to collect them. The strategic research to target the need of the companies before the research is the move from Big to Smart Data. The point of Smart Data is that companies or researchers no longer collect information to draw conclusions from the mass collected but pinpoint their strategic needs of information beforehand to reduce the field of collection.³²⁵

To metaphorize it, when collecting rainwater, Big Data collects all the drops where Smart Data only collects where it rains the most. This approach of Smart Data coupled with the expansion of Big Data has profoundly changed the customer relationship with the implementation of customer feedback loops. The orientation of the business model tends to change as companies tend to move progressively from a “product” business model to a “service” business model. Rolls Royce no longer sells its engines but rents them which allows the collection of various data by sensors placed in strategic spots where issues are frequent. This action allows the customer to be supported in the event of an issue in exchange for real-time information collection in order to improve quality in the long run.³²⁶ It creates a symbiosis between customers and products where both benefit from the data transfer.

Smart Data also helps to improve entire cities where people’s activities are tracked in order to improve communication or to solve their problems more efficiently. Rio de Janeiro is one of the leading figures as a “smart city”³²⁷. One of their main innovative features has been to associate with the Waze app in order to decongest the city lanes by using live data instead of urban prevision for the road network modification.³²⁸

Thus, even if Big Data makes it possible to determine major trends on a certain amount of exploitable data, the challenge of Smart Data is to perform an intermediate filtering before the exploitation of the analytics by targeting the most useful data before the research. In order to do this, smart data analysis strategies are set up in advance by managers, but this treatment and intelligent analysis of Big Data cannot be done by humans. It is in this respect that developments in AI are particularly useful and intrinsically linked to Big Data and Smart Data. Machine learning uses Big Data to benefit from its volume and extend its learning capacity.³²⁹ But

325 A. L. Palacio and Ó. P. López, “From big data to smart data: A genomic information systems perspective,” 2018 12th International Conference on Research Challenges in Information Science (RCIS), Nantes, 2018, pp. 1-11. doi: 10.1109/RCIS.2018.8406658

326 “The Rolls Royce Intelligent Engine driven by Data”, RollsRoyce.com <https://www.rolls-royce.com/media/press-releases/2018/06-02-2018-rr-intelligentengine-driven-by-data.aspx>, Consulted the 2nd July 2019 at 12:30 GMT

327 Clara Schreiner, International Case Study of Smart Cities: Rio de Janeiro, June 2016, Published Online

328 “Improving the Road to Rio”, Waze.com, https://www.waze.com/fr/ccp/casestudies/improving_the_road_to_rio, Consulted the 27th of August 2019

329 Juuso Esko K, 2018. Smart Adaptive Big Data Analysis with Advanced Deep Learning. Open Engineering, 8(1), pp.403–416; M. Esmalifalak, L. Liu, N. Nguyen, R. Zheng and Z. Han, “Detecting Stealthy False Data Injection Using Machine Learning

the long-term objective of the AI that is trained to do it is that they can extremely quickly sort the Big Data to deliver only the Smart Data which has a real potential of exploitation.³³⁰

Smart Data is therefore a form of continuity of Big Data but also reintroduces more traditional mechanics in the wheels. Indeed, it is a way to bring back conventional dense data analysis in an era where data is no longer directly exploitable. Smart Data is therefore the gateway through which Big Data becomes useful, intelligible and profitable for the greatest number of companies and people and not only to the internet giants.

1.5.5. Blockchain

According to a 2015 report from the World Economic Forum on breakthrough technologies and their societal implications, blockchain technology is expected to store an approximate 10% of global GDP by 2027.³³¹ It shows the potential impact such technology could have on the world economy. In Russia, the interest in blockchain and digital currencies dates back to 2016.³³² However, the legal framework still does not allow the technology to thrive. Overall, Blockchain was made widely recognizable with the 2009 creation of Bitcoin as the cryptocurrency needed a secure and decentralized system for its transactions.³³³ It was a way to move beyond the shortcomings of the existing banking system (delays for overseas transactions, commissions from the centralized institution etc.). However, the technology was available prior to cryptocurrencies as Stuart Haber and Scott Stornetta carried out a first work on a secured chain of blocks in 1991.³³⁴ Blockchain technology was defined, during the 2018 Crypto Valley Conference, as “an append-only database maintained by distributed nodes instead of central authorities.”³³⁵ In other words, the technology constitutes a distributed ledger that is completely open to anyone. It is known for its application in the framework of cryptocurrencies but it has the potential to spread in various economic sectors and is expected to bring substantial changes in the field of contractual relationships.³³⁶

in Smart Grid,” in IEEE Systems Journal, vol. 11, no. 3, pp. 1644-1652, Sept. 2017. doi: 10.1109/JSYST.2014.2341597.

330 Edwin, Vand Dijk. “Smart Data Collection Is Required for Continuously Improving Your Production Process.” *Quality*, vol. 57, no. 11, Nov. 2018, pp. 28–31. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=buh&AN=132850729&site=ehost-live.

331 World Economic Forum. “Deep Shift: Technology Tipping Points and Societal Impact”, Global Agenda Council on the Future of Software & Society, September 2015

332 Chudinovskikh, Marina, and Sevryugin, Victor. “Cryptocurrency regulation in the BRICS countries and the Eurasian Economic Union.” *BRICS LJ* 6, 2019.

333 Crosby, Michael. Pradan, Pattanayak. Sankeev, Verma. Vignesh, Kalyanaraman. “Blockchain technology, Beyond bitcoin.” *Applied Innovation* 2, no. 6-10 (2016).

334 Ibid 44

335 “A Scale-out Blockchain for Value Transfer with Spontaneous Sharding.” 2018 Crypto Valley Conference on Blockchain Technology, June 2018.

336 World Economic Forum. “Deep Shift: Technology Tipping Points and Societal Impact”, Global Agenda Council on the

The functioning of blockchain relies on five main features.³³⁷ First, blockchain is a distributed ledger, meaning it grants each party complete access to the entire database and its history. Second, it relies on peer-to-peer transmission. Instead of using a central entity to manage the chain, blockchain uses a P2P network allowing everyone to join. When someone joins the network, he or she gets the full copy of the blockchain. The node can use it to verify that everything is in order. Third, blockchain ensures transparency through a system of pseudonyms. When users make a transaction, they do it through their blockchain address which is a unique 30-plus-character alphanumeric address. It is the users' decision to actually provide proof of their identity or remain anonymous. Fourth, blockchain is able to keep its records irreversible. This is one of the major innovations of the technology. The technique is as follows: each block is identified by a hash which is comparable to a fingerprint. Blocks also contain the hash of the previous block. If someone tampers with a block, it causes the hash to change as well. It therefore shows that there are inconsistencies in the chain. Blockchain combines it with its proof-of-work mechanism that slows down the creation of new blocks. Tampering with a block becomes hard since it requires recalculating the proof-of-work for all the following blocks. Fifth, Blockchain relies on computational logic, meaning it may be run through algorithms set up by users and generate automatic transactions.

Blockchain technology is expected to substantially modify the global economy. According to the European Commission, blockchain has already "numerous applications throughout the whole lawful economy".³³⁸ The technology is expected to reinvent contractual relationships throughout its system of smart contracts. Bernard Marr explains the functioning of blockchain adapted to contractual obligations, namely smart contracts.³³⁹ As blockchain allows the storage of digital information such as computer codes, they can be set to execute only once different parties enter their keys or any other circumstances happen that have been agreed upon. The consequence is that everyone must agree that the contract has been filled and the contract immediately executes when conditions are filled. The use of smart contract is already utilized by businesses in the way they validate delivery of service for example.³⁴⁰ It is also set to expand to new areas such as distribution of electricity through "smart" local power grids.³⁴¹

Future of Software & Society, September 2015

337 Christian Catalini. "How Blockchain Applications Will Move Beyond Finance", Harvard Business Review. March 2017 <https://hbr.org/2017/03/how-blockchain-applications-will-move-beyond-finance>

338 European Parliament. "Cryptocurrencies and blockchain: Legal context and implications for financial crime, money laundering and tax evasion.", July 2018

339 Zgeng, Zibin, Shaoan Xie, Hong-Ning Dai, Xiangping Chen and Huaimin Wang. "Blockchain challenges and opportunities: A survey." International Journal of Web and Grid Services, 2018.

340 Ibid 3

341 European Commission. "Smart Electricity Grids". https://setis.ec.europa.eu/system/files/Technology_Information_Sheet_Smart_Grids.pdf

Blockchain may also lead to substantial changes in the real economy as it allows parties to eliminate the “middleman” in transactions.³⁴² In accounting and banking, Bank of America, Barclays and Morgan Stanley have already announced that they will commit to the R3 CEV initiative, an informal agreement between firms committing to collaborate in investigating blockchain’s potential use in finance. Visa and MasterCard are currently exploring how distributed ledger could improve the process of cross-border payments and make it more affordable.³⁴³ Blockchain can also be used to store ID records, as it is already being envisaged by the European Commission,³⁴⁴ to include more fairness in online gaming and ensure more transparency in electoral process.

Blockchain technology is yet struggling to fulfil its potential making its future uncertain. Security of data and properties of assets raise legal issues as applications of blockchain technology in the real economy are still being experimented with and thus lack reliability. In the EU with advanced data protection rules,³⁴⁵ blockchain technology must deal with an increasingly constraining environment. BRICS countries are also seeking to build a legal environment that takes into account the implications of blockchain. Thus, the surge of investments related to blockchain in Brazil since 2015 has forced the government to adapt its national legislation.³⁴⁶ In May 2017, it established a commission to examine the existing regulation in an attempt to soften the legal framework. Overall, the technology could allow cutting costs, especially in the way information is verified. However, applying it to sensitive areas such as financial services or elections requires a centralized institution to prevent fraud which brings back the idea of an intermediary. Not to mention that unsuccessful attempts of using blockchain technology have occurred. For instance, Honduras property blockchain was announced in 2015 and finally abandoned due to official indifference.³⁴⁷ Sierra Leone used the Swiss start-up Agora to run its elections. It turned out that the company barely observed the election and provided wrong tallies. As a recent example, Stripe, a big digital-payments firm, abandoned its blockchain experiments after three years as it labelled it “slow and overhyped”.³⁴⁸

342 Bernard Marr. “How Blockchain technology could change the world.”, Forbes. May 2016

343 De Filippi Primavera, “Chapitre III. Applications de la blockchain», Blockchain et cryptomonnaies. Paris cedex 14, Presses Universitaires de France, 2018

344 EU Report Considers Blockchain-Based Digital Identities, Tokenized National currencies.

345 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

346 Chudinovskikh, Marina, and Sevryugin, Victor. “Cryptocurrency regulation in the BRICS countries and the Eurasian Economic Union.” BRICS LJ 6, 2019.

347 “The promise of the blockchain technology”? The Economist. August 2018. <https://www.economist.com/technology-quarterly/2018/08/30/the-promise-of-the-blockchain-technology>

348 Jeff John Roberts. “Why Stripe gave up on Bitcoin and Blockchain Payments” Fortune (July 2018, Fortune) <https://fortune.com/2018/07/17/stripe-blockchain/>

Chapter 2: Economics of Platforms

2.1. Theories of harm for multisided platforms: challenges for competition policy and BRICS answers

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Competition authorities in BRICS countries develop theories of harm under enforcement against multisided platforms similar to the corresponding theories of the European Commission. Discrimination and tying with exclusionary effects have been at the center of investigations and decisions. Remedies in the infringement decisions are intended to protect rivalry through ‘no restriction of multihoming’ conditions. There is no evidence that BRICS authorities apply a specific economic theory of multisided platforms (MSPs hereafter). In particular, decisions typically do not identify potential efficiencies from the conduct of MSPs and do not compare losses from anticompetitive conduct with efficiency gains. However, there is no difference with mature jurisdictions in this respect.

2.1.1. Multisided platforms: increasing attention of competition policy

Multisided platforms (MSPs hereafter) are among the hot topics for managerial³⁴⁹ and economic³⁵⁰ studies during at least the last two decades. Despite the fact that network externalities, both direct and indirect (or cross-platform)³⁵¹, emerged and were studied in the pre-digital era, the importance of the issue in the digital era sharply increased. The reason is the increasing opportunities for MSPs to exploit cross-platform network externalities and obtain large profits in digital markets. Moreover, networks can form much faster than before.

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349 Eisenmann, Th., Parker, G., Van Alstyne, M., 2006. Strategies for two-sided markets. *Harvard Business Review*, 84, 92–101.

350 Rochet, J. C., & Tirole, J. (2006). Two-sided markets: a progress report. *The RAND journal of economics*, 37(3), 645–667.

351 In the literature, two types of cross-platform effects are discussed. The direct network effect appears when user’s benefit from a platform is directly affected by the number of users (Katz, M.L., Shapiro, C. (1985). Network externalities, competition, and compatibility. *American Economic Review*, 75(3), 424–440). The indirect network effect means that users on one side of a platform benefit from an increase of the number of users on the other side of a platform (Armstrong, M. (2006). Competition in two-sided markets. *RAND Journal of Economics*, 37 (3), 668–691).

In recent years, there has been a prominent increase in the platform economy. In its 'Technology Vision 2016' report, the global consulting firm Accenture argues that 'unparalleled growth of the digital economy has put it on course to account for 25% of the world's entire economy by 2020, up from 15% in 2005. Platform business models represent a fast-increasing proportion of the overall total'³⁵².

Platform-based companies both create new markets and transform existing downstream markets. Big data represents a particular resource of platforms since it attracts the large number of customers. Processing of big data allows platforms to improve its own decision-making (e.g. to develop a price discrimination scheme) or to improve services for customers (e.g. targeted advertising). Big data may result in a more efficient management of resources that could provide annual net savings of up to €600 billion for EU enterprises. Digital platforms may capture 30–40% of the value created in the industrial chain³⁵³.

However, along with the enhanced resource efficiency, the large size of MSPs may cause a strong impact on competition in platform and downstream markets³⁵⁴. In their value chains, large MSPs act as dominant players ('lead' firms in the sense used by the theory of global value chain)³⁵⁵. Governance in value chains represents not only rule-setting and enforcement but also reallocation of value created in the value chain in favour of the dominant participant. The share of value distributed towards independent participants in downstream markets may decrease. This suggests that competition analysis should look beyond the effects of horizontal competition on consumers or total welfare towards to include the influence of value chain design on the generation and distribu-

352 Walles Ch. The rise of platform business – How digital networks are changing competition. 2018. <http://www.aprison.com/blog/2018/08/the-rise-of-platform-business-how-digital-networks-are-changing-competition/>

353 Strategic Policy Forum on Digital Entrepreneurship. https://ec.europa.eu/growth/industry/policy/digital-transformation/big-data-digital-platforms_da. The forecast uses as an assumption that most European companies use digital resources at the level that their competitors on the digital frontier already use. Increasing the share of value added comprises new transactions generated by the platforms, replacement of the less efficient instruments of advertising, planning, logistics by more efficient ones, and the development of new products and services that would be available by digitalization (for instance, within the area of the Internet of Things).

354 The extensive literature on the impact of MSPs on downstream markets does not fully support the expectations of anticompetitive influence on downstream markets. On the one hand, (Schmalensee, R. (1981). Monopolistic Two-Part Pricing Arrangements, *Bell Journal of Economics*, 11, 445; Whinston, M.D. (1990). Tying, Foreclosure, and Exclusion. *American Economic Review*, 80 (4), 837-859) have examined entry in complementary markets, but without focusing particularly on platform dynamics or cross-platform effects. These authors suggest that monopolists have several strong incentives for entering complementary markets to offer bundling or tying. On the other hand, other papers (Farrell, J. and M. Katz (2000). Innovation, Rent Extraction, and Integration in Systems Markets. *Journal of Industrial Economics*, 48, 413-432; Becchetti, L. and L. Paganetto (2001). The Determinants of Suboptimal Technological Development in the System Company-Component Producers Relationship. *International Journal of Industrial Organization*, 19(9), 1407-1421) show that if a monopolist cannot duplicate the entrants' innovations at a reasonable cost, then it may have strong incentives to try to state to entrants that it will not enter the market for complements to stimulate the competitive efforts of independent suppliers of the complementary product.

355 Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78-104.

tion of value³⁵⁶. In the latter dimension, one important issue is vertical competition as a possibility of the participants in the chain to upgrade and receive a fair part of the overall amount of value generated.

In many dimensions, conditions for successful business models in MSPs are different from related conditions in markets where network externalities are weak. The same is true for conditions that profit-maximizing decisions should satisfy. As a result, standards to identify anticompetitive conduct that a competition authority traditionally applies to one-sided markets (occasionally with important reservations) could be inapplicable for MSPs.

Recall the example of below-cost pricing. We already know that “horizontal” dynamic economies of scale can lead to non-predatory below-cost pricing. However, with MSPs, there is an additional issue: network effects between different sides of the platform (“across the platform”) so that one can have below cost pricing on at least one of the sides where demand is more elastic. Such below cost prices do not reflect a predatory intent but they can have a predatory effect on firms which are not as “vertically” integrated” as the MSPs.

MSPs have the ability to unilaterally influence downstream markets, including pricing, product differentiation, and entry conditions. The influence of MSPs on horizontal and adjacent markets might also be anticompetitive. Antitrust enforcers worldwide focus closely on large MSPs, from Microsoft to Google³⁵⁷. However, in all these cases, the competitive analysis of MSP conduct³⁵⁸ can be tricky, for two main reasons. Firstly, even if some conduct reduces horizontal competition in a given market, cross-platform effects can generate compensating benefits in another market. Secondly, dynamic efficiency, which is central to many MSPs’ business model further complicate the task³⁵⁹. Therefore, a necessary step of the analysis is to weigh losses from competition restrictions against welfare gains. This is especially important under the analysis of economic concentrations.

Competition authorities in BRICS countries face the same problems when investigating and deciding on the conduct of MSPs as their colleagues do in more developed jurisdictions. In recent years, they have made important decisions on abusive conduct of MSPs

356 See more information on global value chain approach in: Lianos I. (2006). Global Governance of Antitrust and the Need for a BRICS Joint Research Platform in Competition Law and Policy. CLES Research Paper Series, 5/2016

357 See, for example, Evans, D.S. and Noel, M.D. (2008). The analysis of mergers that involve multisided platform businesses. *Journal of Competition Law and Economics*, 4(3), 663-695; Haucap, J., Stuhmeier, T. (2015). Competition and Antitrust in Internet Markets. DICE Discussion Paper, No 199; Market power of platforms and networks. 2016. Bundeskartellamt working paper.

358 The best-known example is a dispute between different interpretations of Microsoft conduct when crowding Netscape out of the market for web browsers. See: Gilbert, R. J., & Katz, M. L. (2001). An economist’s guide to *US v. Microsoft*. *Journal of Economic Perspectives*, 15(2), 25-44; Klein, B. (2001). The Microsoft case: what can a dominant firm do to defend its market position? *Journal of Economic Perspectives*, 15(2), 45-62; Whinston, M. D. (2001). Exclusivity and tying in *US v. Microsoft*: what we know, and don’t know. *Journal of Economic Perspectives*, 15(2), 63-80. In the discussion, many arguments were developed in the ‘one-sided market’ logic but at least taking into account direct network externalities.

359 Katz, M. L., & Shelanski, H. A. (2005). ‘Schumpeterian Competition and Antitrust Policy in High-Tech Markets.

and on remedies required for the approval of economic concentrations. The decisions of BRICS competition authorities have less extensively analysed than their counterparts in the EU or the US. This is especially unfortunate as BRICS policy towards digital MSPs might substantially diverge from that in the USA and Europe.

Important differences indeed arise because of BRICS' desire to catch-up with more advanced economies. In most BRICS countries, initial steps in the development of domestic digital markets were made by global rather than domestic platforms. At the same time, countries explicitly stress the strategic objective to develop national digital innovation systems³⁶⁰ involving domestic suppliers of digital solutions, including applications and business models.

The influence of market demand in BRICS on the potential competition in digital value chains, governed by MSPs, is contradictory. On the one hand, large market volume in many cases allows for interplatform competition, even if a platform exhibits substantial increasing returns to scale³⁶¹. At the same time, large market volume makes a domestic market attractive for global platforms, which then tend to dominate the local market. Therefore, domestic competition authorities may give special attention to the threat of foreclosure for domestic competitors and other forms of softening competition in favour of global MSPs, assigning higher weight to the gains of domestic competitors in developing theories of harm. In contrast, they may not take into account decreasing incentives of global companies to innovate as a negative externality of competition enforcement since the impact of their decisions on the investment policies of large global firms is likely to be minimal. Given this difference of perspective as well as the fact that mature jurisdictions have not elaborated a unanimous approach to competition policy, the BRICS need to develop their own approach towards MSPs.

The goal of this section is to describe and explain the approaches that BRICS competition authorities have taken so far towards MSPs. In the next sub-section, we briefly recall the theory of entry and exclusion under network effects. The following one summarizes implications from competition law and the economics of MSPs for enforcement, taking into account specific BRICS conditions. The final sub-section of this part reviews theories of harm/ competition concerns that BRICS authorities elaborate under enforcement, respective remedies and other instruments of competition policy.

360 See detailed description in the previous section.

361 UnionPay payment system is a successful newcomer in the payment system markets with large cross-platform effects due to large scale; Russian MIR ('World') is trying to achieve the same. In the Chinese market, there is intense competition between Alibaba and Tencent in many markets connected by relevant MPSS. In the Moscow market of taxi aggregator services, there has recently been sharp competition between Yandex-Uber, Sitimobil (domestic company) and Gett, with substantial changes in market shares annually.

2.1.2. Implications of the economic theory of MSP for competition policy

2.1.2.1. Incentives to enter and market structure of MSP

Competition policy addresses markets where demand and supply conditions make imperfect competition sustainable. A difficult task in these markets is to distinguish between market power that is explained by demand and supply and the conduct of dominant companies that enhance market power. In other words, competition authorities should distinguish between dominance and exclusionary abuse of dominance.

In the presence of MSPs, this task is especially difficult, as the economic theory of entry in the market with network effects shows. Conclusions of many models of network externalities apply to cross-platform network effects, especially models that involve the heterogeneity of customers. Moreover, certain models that were originally conceived for ordinary network externalities explain exactly the practices of MSP.

The economic theory of entry deterrence for a one-sided market followed several important stages. The starting point was that under high entry costs, entry deterrence could be achievable and profitable³⁶²: by choosing a price at which the entrant could not expect to cover the costs of entry, the incumbent could remain a monopolist. This theory of entry deterrence was criticized for the assumption (called the Sylos-Labini postulate³⁶³) that a potential entrant considers price (or quantity) set by the incumbent before entry as being unchanged after entry. If this assumption is not true, then pre-entry price (quantity) cannot predict the profit that a new entrant obtains in case of entry³⁶⁴.

If entrant and incumbent offer identical products, then they sell at the same price. In this case, production efficiency (cost advantage) of the entrant incentivizes entry, while entry costs disincentivize entry. If there is no cost of entry and the entrant has a cost advantage, entry always takes place in equilibrium. Similarly, the incumbent cannot sell the good at a price that substantially exceeds costs without the threat of entry unless entry costs are very high and/or the incumbent undertakes specific exclusionary actions.

However, these conclusions no longer holding markets with network effects. Consider³⁶⁵ a market for a network good with two sellers – incumbent (I) with the installed base (measured by the number of users N) and entrant (E) with zero installed base. The unit cost of the entrant is lower than that of incumbent $c_E < c_I$, and the entry cost of incumbent is zero.

362 See Bain, J. S. (1956). *Barriers to new competition*. Cambridge, MA: Harvard University Press.

363 Sylos Labini, P. (1957). *Oligopolio e Progresso Tecnico*, Milan: Giuffr ; English version: *Oligopoly and Technical Progress*, 1962.

364 Historically, this point was raised by Dixit (Dixit, A. (1980). The role of investment in entry-deterrence. *The Economic Journal*, 90(357), 95-106.) in the dispute with Spence (Spence, A. M. (1977). Entry, capacity, investment and oligopolistic pricing. *The Bell Journal of Economics*, 534-544).

365 The example presented further is based on Karlinger, L., & Motta, M. (2012). Exclusionary pricing when scale matters. *The Journal of Industrial Economics*, 60(1), 75-103. In the model, there is only one network good sold by an incumbent, and that good potentially could be sold by an entrant. However, for the overall logic, only network externalities matter for the conclusion.

Consider highly dispersed users with unit demand and willingness to pay, $P_i = f(N)$, $\frac{\partial f}{\partial N} > 0$; $f(N = 1) = 0$; $\lim_{N \rightarrow \infty} \frac{\partial f}{\partial N} = 0$. There are N old users who constitute the installed base of an incumbent, and they do not need to pay again for the good in a new period. Now, N new users appear in the market. As mentioned, the entrant has unit costs c_E which are lower than the unit costs c_I of the incumbent. Further assume that if the incumbent is unable to discriminate between old and new users, there are two pure-strategy Nash-equilibria. One is an entry equilibrium where the entrant sells at price $P = c_I - \varepsilon$, incumbent sets price equal to unit cost, and all users buy from the entrant. Another is an exclusionary equilibrium when incumbent sells at price $P = f(2N)$, entrant sets any price lower than incumbent, but all users buy from the incumbent. It follows that entry by a more efficient firm might be deterred even with zero entry cost and even though the incumbent charges the highest possible price. A customer does not gain from switching to a lower-price alternative if the positive network effect is sufficiently large. Indeed, if the available network for entrant is small ($F(2N) - F(N) > c_I$), no cost advantage would be sufficient for successful entry.

An incumbent with a large enough installed base does not need to sacrifice any margin to prevent the entry of a potential competitor. The model explains why size itself may prevent entry and may weaken competition, even without any intention or special actions from the incumbent³⁶⁶. A monopoly structure of markets with large network externalities may result from the cross-platform effect itself³⁶⁷.

This model has several implications for competition policy. The network effect is sufficient to explain the persistence of imperfect competition. Additional factors of cost and service advantages of a platform, including cost subadditivity, informational advantages because of data collected, or superior prediction abilities, are not necessary to explain high concentration. This basic difference should be taken into account by competition enforcement, possibly justifying a specific approach.

2.1.2.2. Impact of network externalities on the effectiveness of exclusionary contracts

For many platform businesses, participants on either side can choose between single- or multihoming. Single-homing might be economically justified without any special contract terms or might result from contractual clauses proposed by MSPs, explicitly requiring single-homing or making it de facto preferable by providing steep quantity or loyalty discounts. In the latter case, the effects of single-homing should be analysed through the lens of the theory of vertical restraints.

366 The important part of the model is the explanation of the impact of different degrees of price discrimination on the availability of exclusionary/ entry equilibrium. The authors show that under third- and second-degree price discrimination, only an exclusionary equilibrium is sustainable.

367 It is interesting to mention the parallels between this model and the model of sustainable natural monopolies (Panzar, J. C., & Willig, R. D. (1977). Free entry and the sustainability of natural monopoly. *The Bell Journal of Economics*, 1-22.). Under some circumstances, the possibility of free undeterred entry does not affect market structure or competition.

Historically, the so-called Chicago school provided important challenges to all the theories of exclusionary conduct under rational decisions of users and incumbents. A conventional presentation of the Chicago paradox³⁶⁸ is that if after entry an incumbent and an entrant with identical unit costs compete à la Bertrand (with equilibrium prices therefore equal to marginal costs), any exclusionary contract under a price higher than marginal cost cannot be supported in a Nash equilibrium. Because consumer losses from a price higher than marginal costs generally exceed the profit of the incumbent, the incumbent is not able to offer a bribe to consumers which is large enough to compensate them from the higher price that an exclusivity agreement would entail.

There is a wide range of post-Chicago models of vertical restraints, which identify conditions that make equilibrium with exclusionary contracts possible. The models include incomplete information on the cost function of a potential entrant³⁶⁹, imperfect competition after entry and specifically important for MSPs – miscoordination between users³⁷⁰. In particular, when entry deterrence requires exclusivity obligations from only part of the overall number of users, then the profits of the incumbent can suffice to bribe this subset of consumers into accepting an exclusivity clause so that an exclusionary Nash equilibrium exists.

The incentives and ability of MSPs to impose exclusivity clauses is greater than for single sided businesses.³⁷¹ Firstly, when a platform binds the users on one side (call it side B) with an exclusionary agreement, positive cross-platform (indirect) network externalities increase demand and willingness to pay on another side (call it side A). This makes it easier to compensate users on side B to prevent their profitable deviation from the exclusionary contract. As Armstrong and Wright stress³⁷², exclusivity in this case substantially affects the distribution of surplus across subgroups of users on either side because, under multihoming, MSPs compete for the users who are multi-homers, extracting the surplus from those who are single-homers. Competition forces lower prices for multi-homers (as their demand becomes more elastic – due to the Rochet-Tirole condition), but higher prices for single-homers.

Several remarks are important here. First, the redistribution of surplus between different sides of platform does not provide clear-cut criteria to identify a competition-weakening effect as the pattern is similar to the rule for pure short-term profit maximization – increase the price-cost margin for the side with low demand elasticity and ‘subsidize’ the side with high elasticity of demand. Second, exclusivity, or single homing, is not necessarily welfare-decreasing.

368 As presented, among others, in: Rasmusen, E. B., Ramseyer, J. M., & Wiley Jr, J. S. (1991). Naked exclusion. *The American Economic Review*, 1137-1145.

369 Aghion, P., & Bolton, P. (1987). Contracts as a Barrier to Entry. *The American Economic Review*, 388-401.

370 Rasmusen, E. B. et al., see footnote 22.

371 Amelio, A., Karlinger, L., & Valletti, T. (2018). Exclusionary practices and two-sided platforms. *Rethinking Antitrust Tools for Multi-Sided Platforms*, 131.

372 Armstrong, M., & Wright, J. (2007). Two-sided markets, competitive bottlenecks and exclusive contracts. *Economic Theory*, 32(2), 353-380.

It might be welfare-enhancing (and competition-preserving) when several competing platforms apply single-homing³⁷³. This is because the platforms' incentives to compete intensely to attract single-homers are high. Third, multihoming vs single-homing affects the welfare effects of other business practices.

Overall, then, the literature does not support any presumptions on the impact of exclusivity on competition and welfare. Particular business practices require specific analysis. At the same time, the effects of exclusivity and single-homing need to be considered not only under the enforcement of antitrust law but also in the context of the merger approval process. Merging one side of a platform in particular circumstances might be an easier means of achieving single-homing. Especially such incentives may arise in vertical mergers since its participants do not need to provide single-homing through exclusive contracts in order to increase the size of network.

2.1.2.3. Justifications of exclusionary conduct

The origin of the positive cross-platform effect is important to develop an efficiency defence for seemingly anticompetitive conduct. Theory and empirical evidence³⁷⁴ support pro-competitive justification for vertical restraints resulting in exclusivity when the sector is sufficiently competitive. To be competitive, a smaller platform might use vertical restraints to achieve critical mass and "get the ball rolling". In contrast, the efficiency defence for vertical restraints or similar policies of a dominant platform should address the origin of cross-platform effects. For transaction platforms, such as hotel booking platforms for example, the exclusivity clause might be the cheapest means of avoiding free-riding, in which parties use the information and contacts available through one platform before completing the transaction either on another platform or by contacting the other side directly.

For digital platforms, additional justifications arise because of the Schumpeterian nature of competition in the sector. In digital markets, competition often takes the form of envelopment³⁷⁵, also known as drastic innovation, in which a new technology completely crowds out the previous one. In such cases, the meaningful competition is *for* the market rather than *in* the market. In such a sector, the current structure of a platform market is not informative for an assessment of competition, just as in contestable markets³⁷⁶. What matters is whether dominance today or some of the actions enabled by today's dominance makes it more likely that the same company will remain dominant through several innovation cycles. For example, current dominance would not be a con

373 Calzolari, G., & Denicolò, V. (2013). Competition with exclusive contracts and market-share discounts. *American Economic Review*, 103(6), 2384-2411.

374 Lee, R. S. (2013). Vertical integration and exclusivity in platform and two-sided markets. *American Economic Review*, 103(7), 2960-3000; Calzolari, G., & Denicolò, see footnote 27.

375 Eisenmann, T., Parker, G., & Van Alstyne, M. (2011). Platform envelopment. *Strategic Management Journal*, 32(12), 1270-1285.

376 Baumol, W. J. (1986). Contestable markets: an uprising in the theory of industry structure. *Microtheory: applications and origins*, 40-54.

cern per se but the systematic acquisition of companies with potentially drastic innovations would be.

2.1.2.4. Unresolved and problematic issues in competition policy towards MSPs

A brief survey of economic models highlights several groups of implications for competition policy, including content of analysis, analytical tools and policy instruments. We begin with the type of analysis that competition authorities should undertake. Firstly, the effects of a particular conduct by a MSP depend on market structure and shares on all sides of the platform. Moreover, the same conduct (e.g., single-homing) may be pro-competitive for smaller platforms but anticompetitive for the dominant one. Therefore an effect-based approach should be applied towards digital MSPs³⁷⁷.

Secondly, it is difficult to distinguish between the deterrence effect of cross-platform network externalities and the effects of exclusionary conditions in MSPs' contracts. If the latter takes place, it can have significant welfare losses, both static (higher price level) and dynamic (worsening entry conditions and therefore a decrease of incentives to innovate by entrant).

Finally, in the competition jurisdictions where legislation addresses not only exclusionary but also exploitative abuses, sustainable dominance of an MSP makes exploitation of users possible. In terms of value chain theory (VCT hereafter), MSPs dominate over their respective value chains³⁷⁸, elaborating and enforcing rules of transactions between users on different sides of platforms.

Performing important tasks within the value chain, an MSP might be interested in re-distribution of the value created within the chain and even in preventing the upgrading of value chain participants³⁷⁹. There is not always a clear borderline between efficient value chain governance and what competition law calls exploitative abuses. This specific nature of the MSPs' position towards value chain allows for many theories of harm.

A second group of implications concerns the analytical tools available to the competition authorities. The bad news is the low discriminatory power of the tests, which authorities usually apply to 'normal' markets. If applied naively to MSPs, these tests would result in either a high probability of wrongful convictions (Type I errors) or wrongful acquittals (Type II errors).

As we have mentioned above, below-cost pricing on one side of a platform cannot indicate predatory intent. Correspondingly, cost-based tests on for excessive pricing on one side of a platform also lose discriminatory power, as a high price on one side of the plat-

377 Katsoulacos, Y., Avdasheva, S., & Golovanova, S. (2016). Legal standards and the role of economics in Competition Law enforcement. *European Competition Journal*, 12(2-3), 277-297.

378 Boudreau, K. J., & Hagiu, A. (2009). Platform rules: Multi-sided platforms as regulators. *Platforms, markets and innovation*, 1, 163-191.

379 Muzellec, L., Ronteau, S., & Lambkin, M. (2015). Two-sided Internet platforms: A business model lifecycle perspective. *Industrial Marketing Management*, 45, 139-150; Gawer, A. (Ed.). (2011). *Platforms, markets and innovation*. Edward Elgar Publishing; Gawer, A., & Cusumano, M. A. (2014). Industry platforms and ecosystem innovation. *Journal of Product Innovation Management*, 31(3), 417-433.

form might be the necessary compensation for low or even negative prices on another side³⁸⁰. The same can be true for other types of exploitative conduct. Taking into account the fact that profit-maximizing vector of prices for the clients of platforms implies a kind of 'cross-subsidization', any benchmarking analysis is extremely difficult, if possible.

Other traditional competition policy instruments and techniques might also be more difficult to apply. For example, the notion of 'Profit sacrifice' or 'no economic sense' tests cannot be applied to a single side of the MSP or even to a limited subset of the sides in which the MSPs are involved. Applying the test to a single side would risk concluding that there is a profit sacrifice even though the lower margins on that side help to generate higher margins on another side, without any profit sacrifice overall. An 'equally efficient test' for any exclusionary agreements is also difficult to apply for MSPs. Since the main source of efficiency is size as a driver of network externalities, an 'equally efficient' competitor should be a competitor of equal size of network. Even a mental experiment of that kind is extremely difficult to conduct as network benefits can be hard to value. The dynamic nature of platform markets add to the difficulties faced by competition authorities. On the one hand, large share does not automatically equate with dominance in terms of an ability to influence the market unilaterally³⁸¹. On the other hand, if vertical restraints prevent entry, this situation may induce substantial welfare losses in dynamic markets. With potential drastic innovation, dominance might be short-lived. However, the main MSPs have been there for quite a few years now. The possibility of drastic innovation does not imply lack of dominance in terms of unilateral static effect. It only does if the probability of drastic innovation itself increases when the MSP follow a particular conduct (say raise prices).

For exploitative abuses, additional complications arise when the competition authority selects a benchmark for comparison. One of the implications of VCT is that a dominant MSP may impose 'unfair' contract terms. However, standards of fairness are very difficult to follow anyway³⁸². Difference between MSP and traditional business model brings additional complications. Straightforward comparisons might be misleading. Taxi drivers under an MSP business model obtain substantially lower earnings per hour than do comparable taxi drivers in traditional taxi companies. *Uber, Gett or Yandex Taxi* for instance internalize transaction costs for both types of users – passengers and taxi drivers. In this respect, taxi services provided by an MSP differ from those provided by independent drivers. The same is true for drivers. As a result, comparison between per hour earnings would be possible only by taking transaction costs into account, which is extremely difficult. Return on capital would also be compared with great caution: under MSP business model risk both of aggregators and taxi drivers differs from the risk level of traditional taxi services, usually compared with. These complications are not particu-

380 Katsoulacos, Y., & Jenny, F. (Eds.). (2018). *Excessive Pricing and Competition Law Enforcement*. Springer.

381 There are many examples in platform businesses in which a seemingly dominant company was crowded out of the market due to drastic technological innovation (see Eisenmann et al, see footnote 29).

382 See, for instance, on the issue of fairness under European enforcement against excessive pricing: Jenny, F. (2018). Abuse of dominance by firms charging excessive or unfair prices: An assessment. In *Excessive pricing and competition law enforcement* (pp. 5-70). Springer, Cham.

larly specific to MSP, but they require sophisticated comparison of risks, returns, prices etc.

Unfortunately, the difficulty in supporting a theory of harm for MSPs does not mean that particular MSPs never adopt anticompetitive conduct, as the efficiency explanation of large size suggests. On the contrary, MSPs from Microsoft to Google have extensive records of exclusionary conduct³⁸³.

Sufficient evidence on the absence of anticompetitive conduct of an MSP on interplatform competition is an absence of any restrictions on multihoming, naked or constructive. However, regardless of the business practice of the MSP, such evidence is valid only in cases where multihoming is technically available, economically reasonable and is not hampered by behavioral biases on the part of users: if multihoming is possible, it also prevents exploitative abuses. If several taxi aggregator services compete, they compete not only for final customers but also for drivers. The probability of keeping drivers' compensation at a fair level increases under competition.

A third group of implications addresses the appropriate instruments of competition policy towards MSPs. If competition law and economics cannot provide a reliable set of tests to distinguish between lawful and unlawful conduct, the two remaining extreme options are nonintervention and sector-specific regulation. Sector-specific regulation for MSPs may emerge outside competition policy. For instance, there was a recent discussion on data as an essential facility that platforms obtain³⁸⁴, with strong arguments both pro and con³⁸⁵. International experience shows that the issues of market power over data might be addressed in different ways, including FRAND rules, widely applicable in the EU³⁸⁶, or by establishing explicit property rights on personal data, which would allow data portability³⁸⁷.

Advantages of the alternative solutions are that they do not rely on the premise that the assets of an MSP are essential facilities or that an MSP is a natural monopoly. In turn, this premise is not always easy to support. The boundary between 'natural monopoly'

383 Baseman, K. C., Warren-Boulton, F. R., & Woroch, G. A. (1995). Microsoft plays hardball: The use of exclusionary pricing and technical incompatibility to maintain monopoly power in markets for operating system software. *The Antitrust Bulletin*, 40(2), 265-315; Economides, N. (2001). The Microsoft antitrust case. *Journal of Industry, Competition and Trade*, 1(1), 7-39; L  v  que, F. (2005). Innovation, leveraging and essential facilities: Interoperability licensing in the EU Microsoft case. *World Competition*, 28, 71; Amelio, A., Buettner, T., Hariton, C., Koltay, G., Papandropoulos, P., Sapi, G., ... & Zenger, H. (2018). Recent Developments at DG Competition: 2017/2018. *Review of Industrial Organization*, 53(4), 653-679; Akman, P. (2018). A Preliminary Assessment of the European Commission's Google Android Decision. *Competition Policy International Antitrust Chronicle*.

384 Graef, I. (2016). *EU Competition Law, Data Protection and Online Platforms: Data as Essential Facility*. Kluwer Law International BV; Graef, I., Wahyuningtyas, S. Y., & Valcke, P. (2015). Assessing data access issues in online platforms. *Telecommunications policy*, 39(5), 375-387.

385 Tucker, C. (2019). Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility. *Review of Industrial Organization*, 1-12.

386 Heim, M., & Nikolic, I. (2019). A FRAND Regime for Dominant Digital Platforms. Available at SSRN 3326186.

387 Takigawa, T. (2018, May). Super Platforms, Big Data, and the Competition Law: The Japanese Approach in Contrast with the US and the EU. In ASCOLA Conference, New York University, June(pp. 21-23).

and ‘contestable market of one seller’ is a threat of new entry or envelopment³⁸⁸. In some MSP markets, threat of new entry emerges because of quite similar use of applications. For instance, taxi aggregators and aggregators of food delivery work in similar way. In many markets that platforms use geolocations, entry on other market is possible and does not require high fixed costs. Envelopment may emerge in similar way, by developing of a particular digital decision for another purposes.

Unfortunately, the probability of envelopment often can be observed only *ex-post* but not *ex-ante*.

Limitations of the sector-specific regulation option follow from the dynamic and innovative nature of digital platforms. Many business practices still lack consistent assessment in terms of their impact on competition. Regulatory rules being fairly elaborated in procedural terms may not achieve desired objectives, but they can easily provide unexpected spillovers. One intermediate option for competition authority is to develop a code of fair business practice³⁸⁹. A code of fair conduct permits engaging a targeted protection group in the elaboration of rules and then combining a broad description of principles with industry expertise in conflict resolution.

2.1.3. Competition policy towards multisided markets in BRICS

2.1.3.1. Market definition and multisided markets

BRICS competition authorities usually apply different approaches to transaction vs non-transaction platforms. For transactions platforms (occasionally called aggregators – see, for instance, the decision on the *Uber-Yandex* merger)³⁹⁰, the affected markets are defined as platform services. However, the digital nature of a platform does not always serve as a feature that defines the market. For instance, in *Uber-Yandex* mergers³⁹¹, the Russian FAS considers ‘traditional aggregating taxi services’ to be a substitute for a mobile platform that belongs to the same markets.

The Brazilian CADE follows the same path in the assessment of the competitive effect of

388 See footnote 29.

389 In Russia, codes of fair conduct are developed in many industries where there are concerns, first, about exploitative conduct of dominant companies. Recently (Spring 2019), a code of fair practice for supplier-retailer contracting, a code of conduct for auto-makers and their dealers, and a code of fair practice in the pharmaceutical industry are in force.

390 Concept of aggregators vs platforms are widely explored in strategic management. A distinction is that participants in the value chain of aggregators do not contribute to the value that the aggregator provides. In contrast, a ‘genuine platform’ in its business benefits from the value created by the users. Therefore, for the aggregators, in contrast to platforms, there are no special incentives to invest in development of the users. Without disputing this distinction, even ‘pure aggregators’ such as online taxi services assist their users in promoting competitiveness. From the perspectives of competition law and economics, the distinction between aggregators and platforms seems to be not very important, even if is important for strategic management. In both cases, network effects explain market structure and efficiencies in the market.

391 Analytical Report on the Competition in the market of services of informational intermediation between taxi drivers and taxi passengers (market of taxi aggregators) (in Russian) Web-address: <https://fas.gov.ru/documents/678673>

Uber` s entry into Brazilian municipal markets. Independent taxi services are considered competitors in the same markets, affected by *Uber`* s entry. In both the Russian and Brazilian cases, a transaction between users defines the market.

In the case of nontransaction platforms (e.g. Facebook, Google), authorities generally consider several distinct markets, interrelated within the platform. For instance, in the case of distorted search results, the Competition Commission of India defines two markets: Online General Web Search in India and Web Search Advertising Services in India³⁹². Considering the alleged restrictions on *multihoming in sponsored search market*, CADE (2013)³⁹³ also does not include the other side of the platform in the market. In the *Android* case (2015), the Russian FAS considered that *Google* was dominant in the markets for *Operating Systems* market, in the *Application Store market*³⁹⁴, and the affected adjacent markets *pre-installation of applications, products, services*, where OEMs are buyers and application developers are sellers³⁹⁵.

2.1.3.2. Theories of harm

2.1.3.2.1. Exclusionary conduct through vertical foreclosure

Vertical foreclosure is at the center of the theories of harm in the investigations of MSPs. Some business practices might be considered *naked exclusion of competing services* (*Google Android Russia, 2015*) or foreclosure through the limitation on contract terms to other potential counterparties through price-parity conditions.

2.1.3.2.2. Exclusionary conduct through other forms of competition softening

Discrimination is another means of competition softening involving MSPs (see *Google Search* case, India, 2012). Discrimination in terms of access to customers' attention, 'clicks' and traffic substantially affects the competitiveness of products. To our knowledge, no decision of a BRICS competition authority contains a quantitative assessment of the impact of search distortion on the comparable competitiveness of suppliers towards final customers similar to the analysis performed by the Directorate General of the European Commission³⁹⁶. However, the underlying logic of the decision is essentially

392 Case No. 07 and 30 of 2012. Competition Commission of India. 2012. Web-address: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

393 Administrative Proceeding No. 08700.005694/2013-19. CADE. 2013. Web-address: https://sei.cade.gov.br/sei/modulos/pesquisa/md_pesq_documento_consulta_externa.php?DZ2uWeaYicbuRZEFhBt-n3BfPLlu9u7akQA8mpB9yPU6W-EVpqsD71wZh_UXEHbWnGimCEVH_DWu20Vj-yrkhN0rSaUY_vZle-vW6Lie0JKlptMDQRdZ40fQuKWEDXD2

394 Decision and remedy, Case No. AD/54066/15. FAS Russia. 2015. Web-address: <https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ad-54066-15/>

395 Under appeal of the FAS decision, Google tries to challenge market definition by defining market more broadly as the market for software. An attempt to define the market in this way was rejected by a commercial court. The judge mentions, among other points, that this type of market definition does not allow identifying the source of market power and disguises abuses of dominance.

396 Press release Antitrust: Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service. Web-address: http://europa.eu/rapid/press-release_IP-17-1784_

the same. Standard of legal conduct in this case is ‘net neutrality’; a search engine is considered an essential facility that should bear specific responsibility to provide fair contract terms to competitors³⁹⁷.

2.1.3.2.3. Exploitative conduct in a value chain perspective

No competition authority of a BRICS country has issued a decision on pure exploitative conduct by a digital platform similar to the decision of *Bundeskartellamt* on Facebook³⁹⁸, where unfairness of contract terms with the final customer is sufficient condition for illegality.

From a value chain perspective, theories of harm applied to competition violations and to merger approval correspond can be ‘exploitative’ in the sense that (i) restrictions of competition prevent upgrading of the participants along the same value chain, and (ii) upgrading of the participants in the adjacent markets can be expropriated by the platform. The effect of expropriation (redistribution) of rent is articulated in the value chain perspective. If counterparties increase efficiency and reduce cost, the governing party decreases the compensation without passthrough to the final customers. One can use dominance at one or more stages of the vertical chain to expropriate the surplus of others in other stages and this reduces/eliminates these targeted firms’ incentives to innovate.³⁹⁹ To our knowledge, no competition authority explicitly includes this theory of harm as central in its decision. In the decisions on *Google Android* (2015), the Russian competition authority mentions potential losses of application developers that receive lower fees that they could when competition in the application stores market takes place.

Generally, if competition law and economics apply the value chain theory instead of the (mostly) neoclassical notion of market dominance, a relevant exploitative theory of harm would be either prevention of upgrading or unfair redistribution of rent⁴⁰⁰.

‘Vertical fairness’ in this context means contract terms that do not prevent upgrading of the participants of adjacent markets by expropriation of rents that parties may obtain for superior productivity. Different theories acknowledge the possibility of the gains obtained by cost reduction of quality improving to be expropriated. The theory of incomplete contracts develops a framework of relationship-specific investments and appro-

[en.htm](#)

397 On the alternative approaches to theory of harm in Google search cases see: Iacobucci, E., & Ducci, F. (2019). The Google search case in Europe: tying and the single monopoly profit theorem in two-sided markets. *European Journal of Law and Economics*, 47(1), 15-42.

398 Decision of Bundeskartellamt B6-22/16. Web-address: https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B6-22-16.html?jsessionid=662562E324C7E6C197A1DCB6886E072D.1_cid371?nn=3600108

399 Farrell, J. & Katz, M. L. (2000). Innovation, Rent Extraction and Integration in Systems Markets. *Journal of Industrial Economics*, 48 (4), 413 – 432.

400 Davis, D., Kaplinsky, R., & Morris, M. (2018). Rents, power and governance in global value chains. *Journal of World-Systems Research*, 24(1), 43-71.

priable quasi-rent⁴⁰¹. There is however an important obstacle to building the theory of harm using an incomplete contract framework. Hold-up theory predicts that a rational independent agent would not be willing to invest in relationship-specific assets under the threat of hold-up. In the incomplete contract theory, the underinvestment problem is resolved by vertical integration or FRAND commitments, and vertical integration resolves the problem of rent expropriation. In the context of dominant platform businesses, participants in adjacent markets might be locked into the contractual relationship so that their rents are appropriated by platforms. However, in a pure framework of incomplete contracts, it would be difficult to explain how the lock-in emerges, if a rational counterparty does not invest or invests insufficiently under the threat of hold-up. Normative analysis shows the impact of potential hold up on the investment to upgrading but it would be extremely difficult to find a positive evidence in favor of the hypothesis on the negative impact of potential hold up on competition.

Generally, discussing this issue is avoided in the modern literature on global value chains. Providing extensive evidence of financialization⁴⁰², that is, appropriation of the cost reduction and quality improvement of the subordinated firms in the value chain by the lead one, authors do not provide an explanation of the efforts and investments of the first group.

This notion of exploitation differs from exclusionary theories of harm that competition enforcement applies even in very pro-regulatory regimes such as Russia. It is not yet a part of a notion of exploitative antitrust violations. The closest is *low monopolistic price* in Russian competition law, where *low monopolistic price* is the contract price paid by dominant buyer. There are no instances of the application of *low monopolistic price* towards MSPs. Similarly, decisions do not apply the notion of abuse of economic dependence⁴⁰³.

401 See Klein, B., Crawford, R. G., & Alchian, A. A. (1978). Vertical integration, appropriable rents, and the competitive contracting process. *The Journal of Law and Economics*, 21(2), 297-326. An interesting parallel between the theory of appropriable quasi-rent and definition of platform in strategic management (see footnote 43 above) is the notion of cooperative relation-specific investments (Che, Y. K., & Hausch, D. B. (1999). Cooperative investments and the value of contracting. *American Economic Review*, 89 (1), 125-147.). Cooperative investments are those that, first, are relationship-specific, and, second, benefit the partner of the investor but not investor himself. This benefit is exactly the effect of the investments of the participants in a market adjacent to the platform if we distinguish between platform and aggregator.

402 See, for instance, Milberg, W. (2008). Shifting sources and uses of profits: Sustaining US financialization with global value chains. *Economy and Society*, 37(3), 420-451; Milberg, W., & Winkler, D. (2011). Economic and social upgrading in global production networks: Problems of theory and measurement. *International Labour Review*, 150(3-4), 341-365; Milberg, W. (2008). Outsourcing economics. In *Economic Representations* (pp. 72-88). Routledge.

403 Bougette, P., Budzinski, O., & Marty, F. (2018). Exploitative abuse and abuse of economic dependence: what can we learn from an Industrial Organization approach? Working Paper, Web-address: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3086714. For Russian competition law, the explanation of the absence of a specific notion of economic dependence is that the notion of market dominance in the practice of enforcement captures the idea of strong dependence. In some extreme cases, competition authorities define market boundaries as bilateral relationships: Avdasheva, S. (2016). Models of monopoly in the quarter-century development of Russian competition policy: Understanding competition analysis in the abuse of dominance investigations. In *Competition law enforcement in the BRICS and in developing countries* (pp. 239-262). Springer, Cham.

If we nevertheless would develop a theory of harm using some version of incomplete contract and/or global value chain framework, it seems to be necessary, first, to acknowledge the unequal bargaining power of the seemingly independent parties. The explanation of the incentives and instruments of abuse would then be directly borrowed from the global value chain concept. The lead firm is able to appropriate rents accumulated by subordinated parties until there is a better outside option. Recall that it is only the lead firm in contrast to a subordinated one that has outside options. Competing to be the better outside option that is the only one that is able to keep the rent, subordinated firms allow for the lead firm to appropriate the gains they create. In the neoclassic analogue of this framework, welfare losses are the losses of distributional efficiency due to increasing inequality in the economy.

If we start from this point, then the evidence of abuse would be a large passthrough of the investments of the participants in adjacent markets on the profits of the lead firm. Until now, no competition regimes, including interventionist ones, is ready to go that far. Even if we accept the point that the rent appropriation in particular circumstances is possible (in the world of incomplete contracts with imperfectly informed users of platforms), and the asymmetric pass-through is an indicator of exploitative abuse (in terms of competition economy), the issue of measurement and comparison of this pass-through is hardly resolved. A similar issue arises in the attempts to enforce against excessive pricing. In Europe, an excessive price includes the characteristics of ‘unfairness’. However, four decades of enforcement have not allowed elaborating the proper threshold of ‘fairness’. A pass-through of efficiency gains from investments is much more difficult to decide on. As for excessive pricing, there is no proper threshold for a ‘fair’ distribution of gains. Additionally, in contrast to the excessive pricing, the pass-through of efficiency gains is not directly observable.

2.1.3.3. Efficiencies and multisided markets

Antitrust decisions towards MSP in BRICS rarely contain explicit assessments of efficiencies. One formal reason is that presumed violations of MSPs are more often illegal *per se*. For instance, tying of pre-installed applications with restrictions of pre-installation of competing applications (*Google Android, Russia, 2015*) is illegal *per se*. Another limitation on efficiency analysis arises from the fact that national authorities, when analyzing welfare effects, concentrate only on domestic markets. Under the global presence of a digital MSP, efficiencies captured by a platform would be missing from the analysis.

Under antitrust enforcement, an exception is the analysis of Most-Favored Nation (MFN) clause as a device to prevent free-riding towards a platform by the hotels in the CADE investigation in *Booking/Expedia/Decolar (2018)*⁴⁰⁴. CADE mentions that the threat of free-riding may destroy the positive welfare effects of a business model that minimizes

404 Booking, Decolar, and Expedia reach Cease and Desist Agreement with CADE. Web-address: <http://en.cade.gov.br/press-releases/booking-decolar-and-expedia-reach-cease-and-desist-agreement-with-the-brazilian-administrative-council-for-economic-defense>

transaction costs for the customers; therefore, efficiencies follow from the transaction-cost minimization.

In turn, there are examples of effect assessment, including efficiencies, in the decisions on mergers and ex-post evaluation of entry. An example of the latter is the assessment of *UBER* entry in Brazilian municipal markets during 2014-2016⁴⁰⁵. Ex-post analysis, which becomes important under discussions on proposed regulations of the taxi applications market, was concentrated on two main effects: price (fares) and entry conditions (measured by the quantity supplied by competitors). Therefore, the CADE approach addresses both final customers (passengers) and the effects on competitors. For the latter, CADE poses the question of whether a platform crowds out 'traditional' transactions. Under the approval of the Yandex-Uber merger in Russia (2017), FAS discussed similar evidence on decreases of fare per kilometer and changes in the number of rides by independent taxi services.

2.1.3.4. Competition remedies

Remedies normally appear under merger approval. In some BRICS countries, especially Russia, remedies are also issued under infringement decisions.

2.1.3.4.1. Remedies promoting interplatform competition

A typical remedy promoting interplatform competition is the support of the right of users to multihome. This support was the most important remedy under the *Yandex-Uber* merger in Russia (2017). *Indian Competition Commission in 2012*, in the Shopping case, ordered Google not to apply restrictive clauses in its negotiated direct search intermediation agreements with Indian partners. Remedies are aimed not only at naked restrictions on multihoming but also at indirect restrictions. An example is the commitment decision of Brazilian CADE in the *Booking/Expedia/Decolar* (2018) case, where online travel agencies agreed to stop using a price-parity clause policy and renounce the conditions imposed on hotels that offer accommodations on their platforms.

Remedies for multihoming tend to protect competition between MSPs, which is horizontal competition. Nevertheless, they may also affect vertical competition by limiting the unilateral bargaining power of particular digital platforms in their relationships with participants in adjacent markets. From a value chain perspective, the protection of multihoming is very important, although not necessarily sufficient, to protect upgrading opportunities. In particular, in the investigation of *Booking/Expedia/Decolar*, CADE specifically stresses the adverse effect of MFN clauses on the abilities of other agencies to enter the market and the distribution of rents between hotels and online travel agencies.

405 CADE analyzes the competitive effects of the Uber's entry in the market, especially over taxi apps. Web-access: <http://en.cade.gov.br/cade-analyzes-the-competitive-effects-of-the-uber2019s-entry-in-the-market-especially-over-taxi-apps>

2.1.3.4.2. Remedies promoting intraplatform competition

In turn, remedies on fair access terms directly affect the bargaining position of platform users. They try to promote the ability of competing ‘unbundled’ sellers in adjacent markets to supply their services using the capacities of the platform. Typically, this type of remedy addresses the issue of discrimination towards competing market participants by MSPs. In the simplest version, this type of remedy is presented by the settlement decision of *Google* with Russian FAS (2016), in which Google voids the exclusionary clause of its Android applications and commits not to encourage OEMs to install only *Google* applications. Thus, competing sellers can take advantage of using *Android OS* under conditions that are typical to essential facilities that are subjects of specific access rules, being a *bottleneck* in the markets.

Remedies in the *Google* Search case in India (2012) address the ability of all noncaptive participants in adjacent markets to be presented in the search results in a search engine as a platform. The decision explicitly states, «... As Google has the ability and the incentive to abuse its dominant position, its “special responsibility” is critical in ensuring not only the fairness of the online web search and search advertising markets but also the fairness of all online markets, given that these are primarily accessed through search engines»⁴⁰⁶. Relevant remedial requirements should display a disclaimer on the commercial flight unit box that clearly states that the “search flights” link at the bottom leads to Google’s Flights page rather than the results aggregated by any other third-party service provider, so that users are not misled.

Clauses that directly promote intraplatform competition also appear in decisions on mergers. Such decisions may address many adjacent markets, even without a specific analysis of competition concerns. For example, MOFCOM in *Google-Motorola* merger (2012)⁴⁰⁷ specifies rather general conditions for business practice in China:

- maintain free Android open source licensing for 5 years;
- maintain nondiscriminatory access to its Android system for 5 years; and
- continue licensing Motorola Mobility patents on a fair, reasonable and nondiscriminatory (FRAND) basis.

Generally, remedies addressing intraplatform contracts directly support vertical but not horizontal competition. They concentrate on the objective of preserving competition in adjacent rather than platform markets.

2.1.3.4.3. Other remedies

Regulatory interventions that affect competition in the markets do not necessarily use

406 Case No. 07 and 30 of 2012. Competition Commission of India. 2012. Web-address: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

407 Conditional Clearance of Google-Motorola Mobility Acquisition. MOFCOM. 2012. Web-address: <http://www.zhonglun.com/UpFile/File/201206121014294533.pdf>

traditional tools of competition policy within competition legislation. Restrictions for foreign-originated platforms due to the specific requirements for the collection and use of data have an important stimulating effect on domestic competing platforms. The development of *Baidu*, *AliBaba* and *Tencent* in China was supported by specific requirements for data protection and data sharing. The *China Operating System*, if successful, will be another example of an alternative approach to competition development in BRICS.

There is no consistent assessment of the economic effects of the Chinese model of competition protection. Recently, however, in the Chinese markets adjacent to digital platforms (such as advertising, online video, music, B2C and O2O commerce, mobile payment and logistic, etc.), there is competition between the platforms that necessarily benefits participants of these adjacent markets.

In Russia, a draft of the law that should affect vertical competition between platforms and adjacent markets outside the scope of traditional competition enforcement was issued at the beginning of 2019. The proposed changes to the Russian law 'On communications' require for all mobile devices imported into Russia, first, domestic applications (including antivirus, browser, messenger and geolocation) should be pre-installed; second, all pre-installed applications developed by foreign companies should be removable. The expected effect is the redistribution of rents created in the value chain of the digital platform towards domestic application developers. However, this type of requirements is much closer to competition remedies promoting intraplatform competition and a supporting model of independent development of domestic digital platforms.

2.1.4. Conclusion

In the last decade, BRICS competition authorities have obtained records on competition enforcement towards MSPs. Under enforcement of competition legislation, theories of harm in investigations and decisions are mostly of an exclusionary, not exploitative nature. Discrimination and tying are typical qualifications of anticompetitive conduct. Exclusionary effects constitute competition concerns under merger approval. Until recently, few contained quantitative assessments of effects – but such assessments do not differentiate substantially between BRICS competition decisions and decisions in mature jurisdictions.

No restriction on multihoming is a universal remedy under both investigations of infringements and merger notifications. Special attention to vertical restraints with exclusionary effects reflects post-Chicago law and economics concerns about incentives to restrict competition. In this respect, the approach of BRICS contradicts neither the economic theory of competition in platform markets nor the practice of developed countries. An important gap in the decisions is the efficiency defence; competition authorities rarely undertake this type of analysis. It seems that neither do companies under enforcement try to develop this line of defence. Decisions on MSPs in BRICS rarely use a specific economic theory of platform competition (if any do so at all). They mostly rely on the standard theory of competition.

The economic theory of platforms does not exclude exploitative theories of harm. However, BRICS competition authorities do not apply them. In some BRICS countries, specific regulatory requirements are designed to support inter- and intraplatform competition. Their impact on rivalry and efficiency recently is understudied.

2.2. Theories of harm for multi-sided platforms II: practical implications for BRICS competition policy

Eduardo Pontual Ribeiro & Svetlana Golovanova

Multi-sided platforms are ubiquitous business in many sectors, particularly in digital markets, taking advantage of the internet communications and information power. These multi-sided, often two-sided, platforms provide an opportunity for users of both sides to interact and solve, in many cases informational problems that hindered transactions. The two-sided markets are often characterized, from the demand side, by the presence of network externalities across sides of the platforms. In other words, the attractiveness of doing business with the platform on one side depends on the number of users of the other side and vice versa. This attractiveness is enhanced by the possibility to predict user behaviour on either side, generating earnings opportunities to the other side or the platform itself.

From a supply side perspective, multi-sided platforms share cost and technological characteristics of firms using information as input or output, namely, small marginal costs but large fixed costs, together with returns to scale (Shapiro and Varian, 1999)⁴⁰⁸. In addition, these platforms generally experience learning-by-doing cost dynamics, i.e., they can reduce the cost or improve the quality of their products as their cumulative output raises over time, with consequences for market structure as in Dasgupta and Stiglitz (1988)⁴⁰⁹.

The multi-sided platforms often introduce new business models for specific sectors, and/or improve their services and internal practices with constant product or process innovations. The innovation dimension suggests that dynamic competition characteristics are central. Where platforms operate may have important competition for the market as well as in the market.⁴¹⁰

These characteristics of multisided platform generate the need to adapt the tools of competition policy analysis, both for merger and for abuse of dominance control. The cross-network effects influence demand and pricing such that they require practitioners to adapt the relevant market delineation and inferences on market power, either by concentration measures or with price pressure indices in merger analysis. The network effects, pricing rules, cost structure and dynamics and the innovation based character-

408 Shapiro, C. and Varian, H. (1999) *Information Rules*, Harvard U Press.

409 Dasgupta P, Stiglitz, J. (1988) *Market Structure and Industrial and Trade Policies* Oxford Economic Papers, New Series, 40(2) 246-268

410 For one discussion of these concepts, see Geroski, P. (2003). *Competition in Markets and Competition for Markets*. *Journal of Industry, Competition and Trade*, 3(3) 151-166.

istics of many of these platforms impose careful analysis in abuse of dominance cases, particularly price-cost comparisons.

We explore these issues, providing suggestions for authorities and practitioners and a perspective from BRICS countries. While discussions of antitrust tools can be found in important forums (e.g. OECD, 2018, CRESSE Meetings, EU, 2019⁴¹¹), we organize the material for both merger analysis and abuse of dominance cases in an integrated framework.

The paper is organized as following. The next section provides the basic dimensions and differences between two-sided or multi-sided platforms firms and markets and one sided markets for competition policy analysis. The literature converged to identifying different types of multi-sided markets. Recognizing the type of two-sided market helps clarifying how to delimit markets. The following section describes the adjustments in the hypothetical monopolist test implementation using Critical Loss Analysis as well as other tools for market delineation, given different types of two sided markets and the role of concentration for market power inference. The last section presents suggestions of tools for abuse of dominance tools, before concluding comments.

2.2.1. Issues to be resolved under antitrust analysis of MSPs

2.2.1.1. To decide whether the MSP concept is necessary

A central distinctive characteristic of MSP is the existence of cross-side positive/negative externalities related to the number of agents on the other side of the platform, the so called indirect network effect or cross-platform effect. The effect can be present in the case of any business that acts as an intermediary.

One key difference is that in two sided markets, contrary to regular intermediary business, both sides can be charged to access the platform. For the case of a supermarket, while it wants to carry a large variety of goods to attract consumers, it pays for the goods that are on display on its aisles. This is a regular, vertical intermediary business. On the other hand, if the supermarket sees itself as a place to generate interactions between product manufacturers and customers, so that it can actually charge producers to have their goods in the supermarket inventory (e.g. when a large portion of its profits come from shelf space auctions for product suppliers) it would then be considered a two sided market for competition policy, as noted by Pike (2018)⁴¹².

The main point is that the two-sided nature has to be relevant for the firm's business behaviour to be taken into account by competition authorities. Just like a competition authority must weigh the costs and benefits of its intervention in business practices that may generate price increases and hurt competition, the Authority must contemplate whether the two-sided characteristics are central to the firm's business plans to alter its

411 EU (2019), Competition Policy for the digital era: Final report. European Commission.

412 Pike, C. (2018) Introduction and Key Findings: In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD.

common analytical tools. The key question is whether the cross-platform effect is the main determinant of the profit of the company that exploits it.

Once the relevance of the cross-platform effect on the business model is identified, important characteristics of the platform will influence market delineation and the competition policy analysis.

2.2.1.2. The need to identify the type of the MSP and approaches to market delineation

Economists distinguish between *transaction* and *non-transaction* multi-sided markets⁴¹³. The classification is very important for understanding economic effects of multi-sidedness and market delineation in case of MSP. In particular, one should address if in a two sided platform one should delimit one platform with consumers from both sides, or two interrelated markets, one on each side of the platform. A summary of MSP classifications for competition policy analysis is provided in Table 1.

Transaction markets are those at which transaction between different (usually, two) groups of platform users are observable. Uber taxi is a good example. In this case the product offered by a platform is the transaction that occurs through it. Different groups of users can be charged a per-transaction fee for using it (although two-part pricing that include a membership or joining fee is not ruled out). Uber charges per ride, not for membership, for example.

An important additional characteristic of the role of two sides in altering the analysis from the usual market analysis is whether the platform is able to control relative prices charged to the two sides. If the sides of the platform can interact and negotiate the incidence of the fees of the platform on one side, platform ability to exploit the two sided nature of the platform is lost as complete pass-through is possible. From this point of view multi-sidedness of the market gives no special tools to a platform, that desires to affect side A demand for its services by manipulating prices for side B users. With pass-through this manipulation is not possible and the market can be analysed as a single market where the price structure is not relevant to attract customers on either side to the platform's benefit. With pass-through the sides internalize their externalities and the cross-side network effect is not influenced by the price structure. Moreover, services provided by a platform to its users at different sides are perfect complements as 'transaction' means that the service to A-type user can be provided only in case some B-type user consumes its service at the same time.

Taking all this into account in two-sided transaction markets one should define only one market – the market of transaction services. Economic agents may use and pay for services of one of competing platforms (if any) or transact without intermediary. Unless the platform is able to restrict economic agents in their ability to choose how to transact with each other the price should reflect the value of the platform services (quick search

413 See Filistrucci, L. (2018) Market definition in multi-sided markets. In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD, and papers therein

Table 1. A summary of MSP classifications for competition policy analysis

	Do sides transact through the platform? Are the transactions observable?	
	Yes	No
Market Type	Transaction markets	Non-transaction markets
	Do pass-through effect present?	Do both sides search for matching?
	No	Yes
	Transaction markets without pass-through	Transaction markets with pass-through
Network effects	Are network effects positive for all sides of the platform?	
	Yes	Yes
Markets to be determined	One multi-sided market. The product is ability to transact with another side of MSP	One multi-sided market. The product is ability to find matching
Pricing strategy	Relative price affects the market, so fees for different sides are to be charged separately	MSP cannot control relative prices, so it focuses on the total price (sum of prices charged for both sides)
Market characteristics	Market size is to be measured by value/ volume/ number of transactions Prices are different for different sides	Market size is to be measured by the number of users on both sides. Prices are different for different sides
Market delimitation	SSNIP for one market corrected for cross-platform effects	SSNIP for one market corrected for cross-platform effects
	Traditional SSNIP for one market	SSNIP for each of the markets corrected for cross-platform effects
	Market size is to be measured by value/ volume/ number of transactions Price of transaction is the sum of prices charged for both sides	Several markets with their prices and volumes. Network effects are to be taken into consideration, when estimating demand and evaluating rivalry and entry
	Relative price affects the market, so fees for different sides are to be charged separately	Only participation fee. In addition, if the "audience" side generates strong positive cross-platform effect, it is rational to minimize its participation fee or to provide it some matching service (it would be a separate multi-sided market). The side that searches for the audience is to be charged participation fee.
	Market size is to be measured by value/ volume/ number of transactions Prices are different for different sides	Several markets with their prices and volumes. Network effects are to be taken into consideration, when estimating demand and evaluating rivalry and entry
	SSNIP for one market corrected for cross-platform effects	SSNIP for each of the markets corrected for cross-platform effects

of the counteragent, better matching etc.) for the users. The total price charged to both sides should be counted as this is relevant for profitability. The prices may be different across sides depending which side is more responsive to prices and/or generate the more externalities for transactions.

Non-transaction markets are those at which different groups of platform users do not transact directly or the transactions are not observable. The most well-known example is 'audience providing' or 'advertising' platforms which provide one user group (advertisers) with the audience or attention of another user group (readers), as in Pike (2018)⁴¹⁴. Advertisers cannot tell whether its ad was actually viewed or the product announced was later purchased. In non-transaction markets pass-through is not possible and the platform has perfect control over the relative prices charged to different sides. The control becomes a source of extra benefits for the platform, as it internalizes the cross-network externalities.

In the case of non-transaction markets the intensity of cross-sides externalities determines if the multi-sided nature of the market should be taken into consideration in an antitrust investigation. In case the externalities are weak and there are no reasons to believe that they are taken into account in the price-setting strategies of the platform, the analysis should proceed as usual, delimiting two different markets in each side acting mostly independently, with no feedback effects. Otherwise, the two relevant markets on each side are deeply interrelated.

Inferring the effect of mergers or anticompetitive conducts on two sided platforms requires the evaluation of whether consumers use only one platform or use competing platforms at the same time. Wismer and Rasek (2018)⁴¹⁵ indicate that on the side where consumers single-home, there may be fierce competition to attract users. Yet if the other side multi-homes, the platform may use its single-homing customers to create local monopolies, and exploit its market power on the multi-homing side, suggesting little competition on this side. Thus inferring whether multi-homing is present or not in either side is important for evaluation market power. Consumer data and surveys are the suggested methods to infer the extent of multi-homing.

2.2.1.3. The need to identify and test abusive intent

In the case of MSP we can follow the same classification of types of abusive conducts used for traditional markets, such as exploitative abuses and exclusionary abuses.

Exploitative abuses (excessive / unfair price, price discrimination) are the most complex and controversial subjects of competition law. After decades of efforts no reliable enough criteria for the threshold that distinguishes 'fair' and 'unfair' prices of a dominant company is developed. In case of MSP the matter is not more transparent. That is why below we discuss exclusionary abuses only. It is worth mentioning however that all

414 See footnote 4.

415 Wismer, S., Rasek, A. (2018). Market definition in multi-sided markets. In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD.

comments given below for specific technical problems related to the identification of predatory pricing (all types of price-cost tests) are relevant in case of excessive (unfair) price investigation.

Exclusionary abuses are business-practices aimed at driving competitors out of the market and strengthening the dominant position. The main types are:

Exclusive dealing. In case of MSP the practice takes the form of single-homing as a necessary condition for dealing with a platform or a condition for getting rebates. Keeping control over the 'bottleneck', MSP can use its dominant position and spread its market power to the other side of the market and interrelated markets as well.

Tying and bundling. MSP is often present at many transaction and non-transaction markets and have an opportunity to practice tying and multi-products rebates. The greater is the number of products in the bundle, the stronger is the anticompetitive foreclosure.

Predatory pricing. One-side price-cost comparison does not make sense in case of platforms. Given the cross-side network effects it may be rational for a firm, with no exclusionary intent, to price below marginal cost, so to attract more customers to the other, more profitable, side of the platform. Besides, pricing below cost might be the only way for a platform to reach the threshold in the number of users necessary to make the network attractive for users.

Margin squeeze may take place, for example, when a platform charges its competitors for access to its client databases at the level that makes their business unprofitable. For merchant platforms, a margin squeeze may be detected when the difference between the retail prices charged by a dominant undertaking and the wholesale prices it charges its competitors for comparable services is negative, or insufficient to cover the product-specific costs of the dominant operator for providing its own retail services on the downstream market.

In case of MSPs anticompetitive effects of the practices should be evaluated with more care as cross-side and network effects may worsen the anticompetitive effects or actually reflect the pro-competitive effects of these business practices.

As discussed in the introduction, supply side characteristics of multisided platforms, namely, economies of scale and learning by doing generate significant barriers to entry and possible avenues for exclusionary behaviour. The economies of scale arise from both the digital /software dimension, where serving an additional customer entails very low or not costs, with very high fixed costs of product or software development, information gathering and processing and brand recognition.

Many a platform central competitive leverage is the possibility of personalizing their supply either by providing the consumer a more personal experience or matching one side of the platform interests with other side of the platform profile⁴¹⁶. Economic relevant cost dimensions are associated with this prediction process. First, there may be significant data requirements for this prediction dimension of the platform, as signifi-

416 We thank Prof Lianos for comments on this perspective on the flip side of many matching business model platforms.

cant consumer data are needed to machine learning (forecasting model selection) of their prediction models. Entrants could be pressed to access similar amounts of data so to have the possibility to exert competitive pressure with a similar quality good. Second, the prediction platforms in particular, but many platforms that provide matching in general, experience significant learning-by-doing as their prediction models need experimentation to validation and improvements. Prediction models must be ‘trained’ and evaluated with actual transactions. While the level of such data as a barrier to entry has been recognized in the literature⁴¹⁷, the learning-by-doing dimension is less explored, but can have significant anticompetitive effects⁴¹⁸ as data access becomes a necessary but not sufficient competition remedies.

2.2.1.4. The need to choose tests for potential consumer harm in mergers and dynamic competition

When considering the risk of consumer harm from mergers, the analysis should follow the same dimensions in standard one-sided cases: mergers may reduce competition significantly, thus generating harm to consumers in both static and dynamic dimensions. In a static analysis the merger may give rise to unilateral price increases or generate coordinated effects. In a dynamic analysis the merger may reduce innovation, firm entry and/or product quality.

The risk of unilateral price increases can be inferred using a quantitative test, namely the (gross) upward pricing pressure (UPP) index (GUPPI). For coordinated effects the literature has not explored the adjustments necessary to the agreement, deviation, and punishment analysis for two sided markets. In this paper we shall discuss the GUPPI tool for unilateral effects after we discuss relevant market delineation.

Platforms, in general, are technology intensive. They use information and processing power to propose new business models. In this perspective the merger analysis of two sided platforms should consider Shumpeterian competition analysis, i.e., dynamic competition tools, as in Shapiro (2011)⁴¹⁹ or Sidak and Teece (2009)⁴²⁰. Evaluating barriers to entry becomes central in antitrust analysis, while market shares levels are not informative, e.g. Shelanski et al. (2018)⁴²¹. Standard dynamic analysis points that the evolution of market shares is informative of market power as firm’s dominant position may be quickly eroded by new, innovative firms that enter the market. For the case of two-sided market the limited informational content of static market shares is compounded by

417 See, e.g., Sivinski, G, Okuliar A, Kjolbye, L. (2017) Is big data a big deal? A competition law approach to big data European Competition Journal 13(2-3)

418 See note Dasgupta and Stiglitz (1988) above.

419 Shapiro, C. (2011) Competition and Innovation: Did Arrow Hit the Bull’s Eye? In Josh Lerner and Scott Stern (eds.). The Rate & Direction of Economic Activity Revisited, U Chicago Press.

420 Sidak, J. G and Teece, D. (2009). Dynamic Competition in Antitrust Law, Journal of Competition Law & Economics, 5 (4), pp. 581-631.

421 Shelanski, H, K Knox, S. and Dhillia A. (2018) Network effects and efficiencies in multi-sided markets In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD.

the challenges to delimit markets and calculate market shares. More importantly the network effects may ‘tip’ the market from a firm to another in a short time (as the late examples of Orkut or Microsoft’s Messenger show)⁴²².

As recent developments in dynamic analysis, Federico, Langus and Valletti (2018)⁴²³ suggest that merger effects on innovation are negative, although there may be two competing effects. On the one hand, a merger internalizes price effects between firms, reducing competition between them and increasing the benefits of innovation. This would lead to mergers improving dynamic competition, by fostering innovation. On the other hand, the benefits from innovation by each of the firms are diluted by the innovation efforts of the other. They show that the second effect is stronger, leading to the conclusion that mergers do generate a loss of dynamic competition. Interestingly for this chapter, the authors indicate that the negative net incentives to innovation after a merger are more likely when firms innovations can potentially divert large sales from the other merging party (an innovation induced UPP diversion like effect) and when there are few other innovators in the market.

The innovation dimension can benefit from the learning-by-doing theory proposed by Dasgupta and Stiglitz (1988)⁴²⁴. In its simplest form the learning-by-doing indicates that innovation requires learning so dynamic competition depends on accumulating experience in producing a good or service. The authors point out that this has implications for market structure. When incumbents experience strong learning-by-doing opportunities, in the authors’ sense, concentration may arise as initial cost benefits accumulate over time by learning and generate advantages to these firms in plausible cases. With respect to entry, learning can justify firms to block entrants with predatory pricing as their future costs would decrease, guaranteeing the success of this strategy.

One important discussion when evaluating theories of harm are the allocation and consideration of potential efficiencies from mergers or business practices within each relevant market or across markets, in the case of non-transaction markets. This is a point of very heated debate, as shown in the recent US Supreme Court decision of American Express case (see, e.g., Hoverkamp, 2019)⁴²⁵. In the case of transaction markets, when one single two sided market is delimited, the issue becomes whether efficiencies on both sides should be weighed against possible anticompetitive effect on one side. In the case of non-transaction markets, when two separate markets are delimited, the issue is whether efficiencies in one market could compensate for anticompetitive effects the other market. While in general the practice is to consider efficiencies in specific mar-

422 The so called ‘death spiral’ effect is the twin side of the network effects. An informal discussion is here <https://digit.hbs.org/submission/the-rise-and-demise-of-groupon-the-importance-of-satisfying-both-sides-of-a-two-sided-network/> and see also Evans, D; Schmalensee, R (2010) “Failure to Launch: Critical Mass in Platform Businesses,” Review of Network Economics: Vol. 9 : Iss. 4, Article 1.

423 Federico, G., Langus, G. and Valetti, T. (2018) Horizontal Mergers and Product Innovation <http://ssrn.com/abstract=2999178>

424 See footnote 1

425 Hovenkamp, H. J. (2019), Platforms and the Rule of Reason: The American Express Case. Faculty Scholarship at Penn Law. 2058.

kets, Ducci (2015)⁴²⁶ argues from an European Competition Law perspective, that when platforms have consumers in either side, the consumer welfare standard of competition policy could rationalize the evaluation of out-of-market efficiencies. For the BRICS countries, this suggests a starting point of discussion of each country based on their competition law standards.

2.2.2. Delimiting markets and measuring market power in two-sided markets: the role of demand functions.

As mentioned above, measuring market power is central in any antitrust investigation. The usual procedure to such measurement starts with delimiting the relevant market. From the list of actual competitors for the purpose of the antitrust investigation, market power is inferred from market shares or/and concentration indices of that relevant market. The paradigm for delimiting a relevant market is the Hypothetical Monopolist Test, described in Horizontal merger guidelines in almost all jurisdictions. A known quantitative tool for delimiting a relevant market is the Critical Loss Analysis or CLA (other quantitative tools are available, as we shall see below).

In addition to market shares, particularly since the 2010 US Horizontal Merger Guidelines, there has been a trend to infer the abuse of market power likelihood in a merger using price pressure indices and other diversion ratios, such as GUPPI (Farrell and Shapiro, 2010⁴²⁷ and Salop and Moresi, 2010⁴²⁸).

Either in delimiting markets or inferring market power, demand estimates (jointly with assumptions on competitive behaviour) are central. Demand elasticities are used in critical loss type analysis or in measuring diversion ratios for GUPPI type indicators.

Demand estimation for markets with two-sided characteristics must take into account the cross-platform externalities across platform sides. From the two canonical models of market analysis for two sided markets described in Rochet and Tirole (2006)⁴²⁹, the cross network externalities may take the form of an interaction effect in the actual output or the form of an explicit complementarity across sides on the demand function.

In the first case, associated with transaction two-sided markets, the actual demand for transactions (Q) would be modelled as $Q = D_A(P_A) D_B(P_B)$ where $D_i(P_i)$ $i=A, B$ are the demand functions in each side of the platform. Here each demand depends on the price charged to each side. Even if zero prices are charged in one of the side the demand function should account for network effects. We consider for exposition a monopolist, so that a single price is relevant for the demand in each side. In markets with many producers the demand function should consider prices of all producers. In this model there are cross

426 Ducci, F. (2015) Out-of-Market Efficiencies, Two-Sided Platforms and Consumer Welfare: A Legal and Economic Analysis *Journal of Competition Law and Economics* (2016) 12 (3): 591-622

427 Farrell, J., Shapiro, C., 2010. Antitrust Evaluation of Horizontal mergers: an economic alternative to market definition. *The B.E. Journal of Theoretical Economics: Policies and Perspectives*, 10(1) article 9

428 Salop, S.C., Moresi, S., 2009. Updating the merger guidelines: comments. Mimeo, Charles River Associates, London

429 Rochet, J.-C., Tirole, J., 2006. Two-sided markets: a progress report. *RAND Journal of Economics*, 37, 645-667

network effects on the number of transactions, although the price demand function in each side does not incorporate the price (or quantity) or the other side.

In the second case, associated with two-sided membership markets, the demand function on each side would be characterized as $Q_A = D_A(P_B, Q_B)$ and $Q_B = D_B(P_A, Q_A)$, where $\partial Q_i / \partial Q_j \geq 0$, $i \neq j$, in general, although negative network effects are not ruled out by theory. Again, we consider a single firm price as relevant for each side for expositional purposes. This demand function system can be written as 'reduced form' in prices, as $Q_A = D_A(P_A, P_B)$ and $Q_B = D_B(P_A, P_B)$, where $\partial Q_i / \partial p_j < 0$, $i \neq j$, following the cross-quantity effect sign. On this reduced it is clear from the demand function the platform sides are complements. Transactions are not observed by the platform, so the network externality accrues to the quantity on each side of the market.

Actual estimation of these demand function face additional challenges compared to the usual demand estimation requirements for identification (such as the use of instrumental variables). Compatible data (in units, data sources, time periods, e.g.) from both sided of the markets are needed. Dealing with zero prices also implies adjustments, in the demand estimation of the zero price side, where other competitive dimension might be relevant; e.g. Jeziorski (2014)⁴³⁰.

There are few examples of demand estimation in the literature for the above demand functions. Most, if not all, deal with the second type of demand system, for non-transaction markets. They actually deal with non-digital markets such as printed media readership and advertising (newspapers in Italy in Argentesi and Filistrucchi, (2007); newspapers in the Netherlands in Filistrucchi et al. (2012a, 2010, 2012b); TV magazines in Germany in Song (2015))⁴³¹.

Both Argentesi and Filistrucchi (2007) and Song (2015) estimate demand models for each side of the market using the well-known (Nested) Logit demand functional form, expanded to include quantity measure from the other side. They estimate structural models of the $Q_i = D_i(P_i, Q_j)$ type. In Argentesi and Filistrucchi paper cross-platform effects are present in the advertising side only.

For Argentesi and Filistrucchi (2007) data suggests multi-homing is not a common practice for the majority of consumers on either side, so it is assumed single-homing is the norm. Instruments are other firms' product characteristics as common in Logit models.

430 Jeziorski P. (2014). Effects of mergers in two-sided markets: the U.S. radio industry. *American Economic Journal: Microeconomics*, 6(4): 35-73

431 Argentesi, E., Filistrucchi, L., 2007. Estimating market power in a two-sided market: the case of newspapers. *Journal of Applied Econometrics*, 22, 1247-1266; Filistrucchi, L., Klein T. J., Michielsen T.O. (2012a). Assessing unilateral merger effects in the Dutch daily newspaper market. In: *Recent advances in the analysis of competition policy and regulation*, ed. by J.E. Harrington and Y. Katsoulacos. Edward Elgar Publishing. Ch. 10.; Filistrucchi, L., Klein T. J., Michielsen T.O. (2010). *Merger Simulation in a Two-Sided Market: The Case of the Dutch Daily Newspapers*. NET Institute Working Paper No. 10-15; Filistrucchi, L., Klein T. J., Michielsen T.O. (2012b). *Assessing Unilateral Merger Effects in a Two-Sided Market: An Application to the Dutch Daily Newspaper Market*. *Journal of Competition Law and Economics*, 8(1), 1-33; Song, M. (2013) *Estimating Platform Market Power in Two-Sided Markets with an Application to Magazine Advertising*. Simon School Working Paper No. FR 11-22. Available at SSRN: <https://ssrn.com/abstract=1908621> or <http://dx.doi.org/10.2139/ssrn.1908621>

In Filistrucchi et al. (2012a) the multi-homing issue on advertising is opposite, with advertisers 'all-homing'. In general the limited literature does not provide a special treatment of single-homing/ multi-homing, but for the adjustment that it multi-homing is possible the membership numbers can be larger than the number of users.

2.2.2.1. Critical Loss analysis, SSNIP and HM test

The most rigorous quantitative tool used for market delineation is the so-called "Small But Significant Non-Transitory Increase in Price" test (SSNIP test). It is aimed to define the smallest set of substitute products such that a substantial (usually 5-10%) and non-transitory (usually one year) price increase would be profitable for a hypothetical monopolist. If it is not profitable, then at least one close-enough substitute to the product is expected to exist.

The SSNIP test is often performed by Critical Loss Analysis (CLA), as mentioned by Davies and Garcés (2010)⁴³². The idea is to compare a "Critical Loss" in sales (the percentage loss in quantity of a product sold by a hypothetical monopolist which is enough to make an X percent price increase unprofitable) and "Actual Loss" in sales (the predicted percentage loss in quantity that the monopolist would suffer in case of price increase by X percent).

For regular one sided markets, the most used formulas for the:

Critical Loss (CL) is: $CL = X/(X + M)$. This would be compared to the Actual Loss (AL) from a SSNIP, that can be estimated. Actual Loss: $AL = X\epsilon^{HM}$

where M is the percentage markup, and ϵ^{HM} is the price elasticity of the hypothetical monopolist (collection of firms in the candidate market), respectively.

The model assumes that firms within the market do not optimize the price increase and that the criteria is whether the X SSNIP price increase is profitable or not (breakeven condition).

A relevant market is determined when $CL \geq AL$. If $CL < AL$, the SSNIP is not profitable suggesting that there are close enough substitutes outside the hypothetical group of firms within the relevant market. The market should be expanded to include more substitutes.

The formulae can be adjusted for a Critical Elasticity and Actual Elasticity, dividing both sides by a percentage price increase, i.e., the SSNIP, namely,:

Critical Elasticity: $\epsilon^{HM*} = 1/(X + M)$

If the (absolute value) of the actual hypothetical market price elasticity is larger than the (absolute value) of the critical elasticity, the candidate market should be enlarged.

In case of a multi-sided platform the formulas are to be corrected due to existence of indirect network externalities. The papers of Evans and Noel (2008)⁴³³ and Filistrucchi

432 Davies, P. and Garcés, E. (2010) Quantitative Techniques for Competition and Antitrust Analysis. Princeton U. Press

433 Evans D.S., Noel M.D. (2008). The analysis of mergers that involve multi-sided platform businesses. Journal of Competition Law and Economics, 4:3, 663-695

(2008)⁴³⁴ contribute to the issue. The authors deduce the following formulas for the case of two-sided non-transaction platforms. In this case it is reasonable to define two (related) markets, one in each side.

The papers differ in the assumptions about (i) the price changes, whether simultaneous price increases in both sides of the platform or not; (ii) the re-optimization of prices from feedback effects across platforms.

We take a simpler approach, in line with the basic Critical Loss exercise. We assume that each firm does not optimize the prices in the other side of the platform, as a response to the SSNIP in one side of the platform. In non-transaction markets, one should specify two markets. And the usual assumption on the hypothetical monopolist exercise is that firms and products outside the market does not react to the SSNIP. Interestingly even under the assumption of no price realignment within the platform from a SSNIP in one side of the platform, the indirect network effects play a very important role in the calculation of the Critical Loss. We indicate the possible bias arising from the violation of this assumption, following both authors.

In addition, we take the simple benchmark method for Critical Loss calculation. The CL is obtained by evaluating whether the SSNIP is profitable⁴³⁵. For a transaction market the critical loss expression would be the same as in the regular market, but using the total price increase SSNIP $(DP_A + DP_B)/(P_A + P_B) = X$ and total margin, a weighted average of the margins in each side.⁴³⁶

Here the cross network effects alter the CL formula significantly, so that the total price and total margins are relevant for calculating it. Using only the price and margin from the hypothetical platform on one side of the business could lead to a too narrow, or too large market, depending on the relative margins. Suppose we use side A price and margin only. The resulting critical loss will be lower than the actual critical loss if $M_A > M_B$.⁴³⁷ Using the high margin side information only to calculate the critical loss would lead to a too broad market, as the calculated critical loss is too small, leading to a higher likelihood of an unprofitable SSNIP. Symmetrically, using the low margin side information only to calculate the critical loss would lead to narrow relevant markets and an upward bias in the calculated market shares. If one of the prices are zero, the Critical loss formula would be based on a SSNIP for the non-zero price side, but include costs related to both sides.

In *non-transaction* markets, one relevant market should be specified, taking into account the network externalities. If we assume that elasticities are constant, a total price SSNIP of, say, 5% implies an equal 5% increase in each of the prices.

434 Filistrucchi, L. (2008). A SSNIP Test for Two-sided Markets: The Case of Media NET Institute*Working Paper #08-34

435 Algebraic details on the formulae are available upon request with the authors.

436 The same expression is obtained by Evans and Noel (2008), footnote 25.

437 Recall that we assume a symmetric SSNIP in both sides, so that total price increases by the SSNIP. We compare a mis-specified $CL_A^* = DP_A / (DP_A + (P_A - C_A))$ with the CL formula above.

$$CL_1 = \frac{X_1}{[X_1 + M_1]} - \frac{M_2 R_2 X_1 |\varepsilon_{12}|}{[X_1 + M_1] R_1}$$

where $M_i = (P_i - C_i)/P_i$; $R_i = P_i Q_i$ and $e_{AB} = (DQ_B/Q_B)/(DP_A/P_A)$ the cross price elasticity of demand across sides of the platform.⁴³⁸

The expression reflects the result in the cited papers that, if the cross network externality is positive (so that sides are complements, $e_{12} < 0$), the cross network effect reduces the Critical Loss. If the analyst does not consider the cross network effects the estimates Critical Loss will be too large and possibly the relevant market is defined as too narrow (a wrong CL analysis would find a price increase profitable, delimiting a market, while the correct CL would be smaller and the same price increase could become non profitable suggesting a broader marker).

While this case has not been explored in the papers cited, we can use the above expression to evaluate a side of the platform (A in our example) that charges a non-zero price, while the other side carries a zero price, i.e., $P_B = 0$.

$$CL_1 = \frac{\Delta P_1/P_1}{[\Delta P_1/P_1 + (P_1 - C_1)/P_1]} + \frac{C_2 Q_2 |\varepsilon_{12}|}{Q_1 [\Delta P_1/P_1 + (P_1 - C_1)/P_1] P_1}$$

The additional term is positive. The correct critical loss/ critical elasticity would be larger than the one calculated with a mis-specified demand model with no cross-network effects. The mis-specified model would delimit too wide markets. The zero price in side B and the cross effects generate a benefit for the losses generated by the price A increase, as the lower demand reduces the total losses.

On data requirements, cost and margin measures may be difficult to calculate as in many information based markets, where marginal costs are minimal and fixed costs significant. As an extreme case, Pike (2018)⁴³⁹ identifies situations where the firm profits (divided per quantity) from accounting information may be used.

Clearly the challenge to implement the above expressions is to calculate the price elasticities (as seen in Pike (2018)). A full-fledged demand system would be required, with additional cost information from all firms in the candidate market. In case of transaction markets with pass-through the 'standard' (for regular one sided markets) CLA is to be used where the quantities would be transactions and the price would be the sum of prices charged to the two sides of the platform. For transaction markets without pass-through the quantities would be transactions and the price for the demand estimation would be each side fees. In cases where transaction markets use two-part tariffs (a membership and a per unit fee) this would require additional care. If one of the sides is charged a zero price, demand estimation is relevant on the other side only. Note that as the number of transactions is the quantity variable, the fact that one price is zero does not alter the estimation significantly. For non-transaction matchmaking markets the

438 This expression is seen in Filistrucchi, 2008 see footnote 26) as a special case. Note that while the author claims it is also present in Evans and Noel, 2008 (see footnote 25), the latter paper expression (5) is actually different.

439 See footnote 4

challenge is to provide prices and quantities in comparable units. For non-transaction audience markets while two separate markets are estimated, demand analysis treat them as complementary products, so units of measurement and quantities must be compatible on each side. The business practice should be used. E.g., Argentesi and Filistrucchi (2007)⁴⁴⁰ use cover price per newspaper (abstracting from the fact that across the week the number of pages and prices vary) for the readership side and the number of advertising slots and the price per slot in Italy. Filistrucchi et al (2012a)⁴⁴¹ use advertising price per column millimetre and advertising area purchased for the Dutch market.

A common practice in delimiting markets is to use a residual demand approach for the hypothetical monopolist. If all the firms in the candidate market have a similar business model that allows comparability of prices and quantities this can be replicated. On the other hand, when the relevant market includes different business models (e.g. a platform that uses only membership fees in its transaction market, and other that use a per transaction fee) econometric exercises are not feasible.

Obtaining quantity and prices hinder a full-fledged demand estimation exercise. Filistrucchi (2018)⁴⁴² and Wismer and Rasek (2018)⁴⁴³ point to alternatives, such as customer surveys. For between platform diversion ratios, customer churning or natural experiments of supply interruption or entry effects could be used. Brekke (2018)⁴⁴⁴ provides an example from the Norwegian Competition Authority, in a newspaper merger. A survey was sent out to users of each side of the platforms (readers and advertisers) asking what would be the second option if their current newspaper was not available. This was used to calculate diversion ratios between firms, in the same side of the platform. The survey was carried out by phone (readers) or letter (businesses), given the relative number of each side. The author points out that the survey could have been used to infer about diversion ratios across platform sides.

Capturing cross-side deviations is more complex, argues Brekke (2018). Consumers might not be able to evaluate whether an increase in the volume of, say, advertising, would lead them to switch to another platform. While this could suggest that one of the cross-side effects is null, it may just reflect difficulties in recognizing this situation.

In all cases usual care on survey design is recommended to avoid steering respondents (framing bias), recollection bias and other. For example the questions should not create certain abstract situations so that members in each side of the platform would not be able to provide realistic answers.

Other market delineation tools used for markets with no cross-network effects may be used. Lianos and Genakos (2013)⁴⁴⁵ review the European experience and report the use

440 See footnote 23

441 See footnote 23

442 See footnote 5

443 See footnote 7

444 Brekke, K. (2018) Measuring market power in multi-sided markets. In OECD. In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD.

445 Lianos, I. and Genakos, C. (2013). Econometric evidence in EU competition law: an empirical and theoretical analysis, in:

of price correlations, natural experiments and surveys in the first decade of the 2000 for general cases. In the case of multisided platforms, in addition to surveys, discussed above, natural experiments could provide interesting information for both demand elasticities and, more important, substitution patterns across products or competitors. A now classical example is the Ineos/Kerling case, cited by Lianos and Genakos, where plant accidents shut down production and forced substitution by consumers. Price correlations can be used, although there are known limitations such as the influence of cost and demand shocks unrelated to substitution patterns across products. The absence of prices in sides of the markets may restrict the analysis. In principle, if prices are available, for transaction markets total price correlation should be estimated, while for non-transaction markets price correlations for each market are required to inform about relevant market delineation.

2.2.2.2. Estimation of market shares, concentration and dominance

Once a market is delimited, in most jurisdictions a competition case would present the level of market power and the possible increase in market power from concentration indices. In the case of platforms the standard technique of measuring market shares and concentration for evaluating market power can be applied. In case of transaction markets, initial data for the analysis should be the value/ volume/ number of transactions; in the case of non-transaction markets the number of users at each side of the platform seems to be the most appropriate measure of the size of the market.

The Herfindahl-Hirschman index (HHI) is a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers. The indicator can range from close to zero to 10000. The higher the value of the indicator the more concentrated the market is. Markets are considered highly concentrated if HHI exceeds some threshold, which is, for example, HHI=2500 in Brazil and 2000 in Russia.

It is worth mentioning however that in two sided markets such concentration indices are less informative than in other markets. While there is a clear theoretical link between market power and concentration (HHI) in markets with homogeneous goods, such link is much weaker in markets of differentiated products. This gave rise to the Price Pressure Indices below and shifted the focus to diversion ratios between merging firms, without requiring competition authorities to explore in detail the pattern of substitution across non-merging firms in the relevant market.

Pike (2018)⁴⁴⁶ and Caffarra and Uwe-Kuhn (2018)⁴⁴⁷ point out that platforms usually bring sharp innovation to a type of good consumed. This creates a challenge to compare its product with other products. A new business model is often what the firms brings to the market. Products are often extremely differentiated across platforms, so the difficulties

Handbook on European Competition Law, chapter 1, pages 1-137 Edward Elgar Publishing.

446 See footnote 4

447 Caffarra, C.; Kuhn, K-U. (2018). The competition analysis of vertical restraints in multi-sided markets. In OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. OECD.

in delimiting markets in differentiated goods is amplified in a two-sided market setting. This leads many authors to the conclusion that little emphasis should be placed on market power presumptions from concentration. Some even come to the suggestion that competition authorities should skip the market definition exercise. Yet in many jurisdictions the market definition is required to measure dominance (market shares in Brazil, e.g.) or to base fines in abuse of dominance cases (Russia, e.g.).

Two sided markets pose additional challenges: cross-network externalities imply that market power in one side would reinforce market power in the other side (when looking at two interrelated markets), even if the level of concentration is low on the other side; network externalities in each side (with single-homing) may generate tipping point/winner takes all situations that create significant entry barriers to other consumers, even if the market is not near monopoly on that side; single-homing or multi-homing can influence the competitive assessment and the extent it exists should be evaluated (Wismer and Rasek, 2018⁴⁴⁸).

Last but not least, as mentioned in the previous section, even a monopoly position of an MSP on a market should not be associated with its market power keeping in mind the dynamic nature of competition. Innovations and development of new products are the result of competition on the merits. Improved products and services in competitive markets displace outdated ones. This dynamic competition cannot be measured by concentration indexes. Actually, no tools have been developed to assess dynamic effects in a multi-sided markets setting.

2.2.2.3. Modified GUPPI to unilateral effects assessment

The Upward Pricing Pressure (UPP) concept was proposed by Farrell and Shapiro in 2010⁴⁴⁹. The idea can be traced back to Salop and O'Brien (2001)⁴⁵⁰. UPP is the difference between two pricing incentives of a merger: an upward pressure on prices due to the loss of competition and downward pressure on prices due to merger-related rise in production efficiency (marginal cost decrease). The formula is given by:

$$UPP_1 = (P_2 - C_2)D_{12} - E_1C_1$$

where 1, 2 are differentiated products supplied by corresponding merging companies; D_{12} is the diversion ratio from product 1 to product 2, P_2 is the price of product 2, C_1 and C_2 are the marginal costs of product 1 and 2, respectively, and E_1 is a measure of possible merger-related cost decrease in producing product 1; UPP_1 is the upward pricing pressure for the price of product 1. As long as $UPP_1 \geq 0$ the merging firms will have incentives to increase the price of product 1.

Alternatively, the Gross Upward Pricing Pressure Index (GUPPI) proposed by Salop and

448 See footnote 7

449 See footnote 19

450 Salop, S; O'Brien, D (2000) Competitive Effects of Partial Ownership: Financial Interest and Corporate Control, 67 ANTI-TRUST LJ. 559 69

Moresi in 2009⁴⁵¹ does not grant an efficiency credit and present the information as a percentage price increase for firm 1:

$$GUPPI_1 = \frac{P_2 - C_2}{P_2} D_{12} \frac{P_2}{P_1}$$

In fact, the formula takes into consideration the upward pressure on prices only with no efficiency allowance. The GUPPI will always be positive if the merging parties' products are substitutes. Practical use as a tool for merger screening, requires some threshold level to be specified by competition authority as suggested by the authors. Farrell and Shapiro suggest up to 5%, as these are likely efficiencies in many mergers.

Affeldt et al. (2013)⁴⁵² extend UPP and GUPPI for the case of merging *non-transaction platforms*. Price changes in multi-sided markets involve both direct demand effects across firms, as in one-sided markets, and also network externalities effects across sides. While the analysis can become complicated easily, as the formulae must account for two firms (1 and 2) and two sides (A and B). We take the authors' example of a newspaper as a platform. The merger affects both the advertising (A) market and the readership (R) market. The demand function for each side and each firm depend on all prices. For example $Q_1^A = D(P_1^A, P_2^A, P_1^R, P_2^R)$. If positive cross side effects are present, the effect of P_2^R on Q_1^A is positive, as firms are substitutes and platform sides are complements.

The authors show that in case of merger between newspaper 1 and newspaper 2, the UPP condition for newspaper 1 in the readership market is given by:

$$UPP_1^R = (P_2^R - C_2^R)D_{12}^{RR} - E_1^R C_1^R + (P_2^A - C_2^A)D_{12}^{RA} - E_1^A C_1^A D_{11}^{RA}$$

The first two terms are the standard UPP measure for one-sided markets as seen above. The additional two terms are generated because of the cross-network effect. measures the increase in sales in firm 2 advertising business from a price increase in firm 1 increase in readership (newspaper cover) price. This is likely to be positive in the case of newspapers, but generally can take any sign depending on the nature of the network externality. The last term is of particular interest: it measures the efficiency gains in the other side of the platform, multiplied by the volume sales relative change, induced by and an increase in newspaper cover price. This term is likely to be negative in this example: a price increase in newspaper cover price reduces readership making it less attractive to advertisers. The total effect of the cost savings in the advertising side may be to increase readership prices.

GUPPI measures, which ignore efficiency gains, for two-sided markets can be written:

$$GUPPI_1^R = M_2^R D_{12}^{RR} \frac{P_2^R}{P_1^R} + M_2^A D_{12}^{RA} \frac{P_2^A}{P_1^R}$$

Where M_2^R and M_2^A are the profit margins (in percentage) of newspaper 2 in the mar-

451 See footnote 20

452 Affeldt P., Filistrucchi L., Klein T.J. (2013). Upward pricing pressure in two-sided markets. The Economic Journal, 123(572), 505-523

kets R and A respectively. Interestingly, if the readership side has below cost pricing the GUPPI/UPP formulas will suggest a possibly negative price change after the merger, as reducing the readership reduces losses across platforms. This of course would be compensated from the cross-platform margin.

For *transaction platforms* it is not difficult to provide a UPP like formula, with no allowance for efficiencies

$$UPP_1^R(T) = [(P_2^R - C_2^R) + (P_2^A - C_2^A)] D_{12}^{RR}$$

Where $D_{12}^{RR} = (\partial D_2^R / \partial P_1^R) / (\partial D_1^R / \partial P_1^R)$. Recall that the demand function is $D_i^A(P_i^A, P_j^A) D_i^R(P_i^R, P_j^R)$. As in the usual UPP formula, the margin on the other firm and the diversion ratio across firms are central. In a transaction market the relevant margin is the total margin, or the price in one side of the platform minus the adjusted, 'opportunity cost' in the words of Rochet and Tirole (2006)⁴⁵³ $C_2^R - (P_2^A - C_2^A)$. The diversion ratio refers to diversion across firms, comparable to the simple one sided UPP. Compared to the non-transaction market formulae above, there is no cross-side diversion ratio as in this model transactions require one-to-one in each side.

2.2.2.4. Tests for exclusionary abuses in MSP

A number of tests aimed to sort out pro-competitive from anti-competitive exclusionary conduct of a dominant company have been proposed by scholars for traditional (one-side) markets (OECD, 2005)⁴⁵⁴. These include:

- a) *the profit sacrifice test (the "but for" test)* which states that conduct should be considered unlawful when it involves a profit sacrifice that would be irrational if the conduct did not have a tendency to eliminate or reduce competition.
- b) *the no economic sense test (the NES test)* which states that a conduct should be unlawful if it would make no economic sense without a tendency to eliminate or lessen competition.
- c) *the equally efficient firm test* which states that conduct should be unlawful if it would be likely to exclude a rival that is at least as efficient as the dominant firm is.

The above tests are used but subject to criticism for non-two sided markets. Test a), the profit sacrifice "but for" test, is criticised in several ways. First, short run profit sacrifice does not always follow exclusionary conduct, thus the test is under-inclusive. Second, profit sacrifice may follow a conduct that formally restricts competition while increasing social/consumer welfare. So, the test may be over-inclusive as well.

In contrast to the "but for" test the b) NES test prohibits the conduct that eliminates competition and provides an economic benefit to the defendant only because of a competition restriction effect, regardless of whether the conduct is costless. Thus the test avoids the criticisms directed at the profit sacrifice test related to ambiguous relation-

453 See footnote 21

454 OECD (2005). Competition on merit. OECD Roundtables. <http://www.oecd.org/competition/abuse/35911017.pdf>

ship between exclusionary conduct and economic results of a company. At the same time the test is still weak in terms of balancing of positive and negative welfare effects of a conduct.

For the case of test c), the problem of efficiency measurement and comparison when products are differentiated and business strategies of companies differ is well known, irrespective of the 'sidedness' of the market. The criticism of the test is related also to the fact that logically the exclusion of less effective competitors should not be considered harmful for competition. However in many cases a dominant company is more efficient than its smaller competitors and new entrants need time to reach the level of efficiency comparable to the one of existing firms. Results of the test would not treat their exclusion from the market illegal despite their potential ability to compete and improve social welfare.

The above tests implicitly use the pricing results of firms with market power. We should expect firms with market power to price above marginal cost, following the Lerner Index. The same approaches could in principle be applied to MSP, taking the mentioned weaknesses into consideration. However multi-sidedness adds restrictions on the applicability of the tests because of network effects and interrelation of markets. All types of price-cost tests are problematic when applied to MSP because pricing rules with market power can generate below cost pricing in one side of the market, with no exclusionary intent. Platforms may price one side of the market with a price above the opportunity cost of servicing this market, that includes not only the actual direct cost of the service but the loss in profits from a higher price in the other side of the platform, given cross-network effects. The Lerner index as usually measured can possibly overestimate and underestimate the degree of market power. In general, if positive cross-side platform effects are present, the Lerner index can be negative if using information from one side of the market only.

Put in another way, the two sided nature of these markets, with their cross-price elasticities require sharp changes in the tools for the analysis of exclusionary practices (as well as excessive pricing), compared to regular analysis. According Rochet and Tirole (2006)⁴⁵⁵, in transaction platform cases the price level (the sum of prices in both sides) is the competitive measure that reflects market power, not the price in each side. The relative prices are used to balance the market, in the sense of attracting consumers, in proportions to their relative elasticities to maximize the number of transactions. Fletcher (2007)⁴⁵⁶ thus does argue that the Areeda/Turner guidance that below marginal cost price in a single side of the market does not inform of predatory pricing. One should consider the sum of prices and the joint marginal cost to evaluate whether negative margins are present.

455 See footnote 21

456 Fletcher, A. (2007). Predatory pricing in two-sided markets: A brief comment. *Competition Policy International*, 3(1), 221-224

For non-transaction two sided markets, Behringer and Filistrucci (2015)⁴⁵⁷ come to a parallel conclusion. Given the cross network externalities and the different, possibly unrelated prices, below marginal cost pricing is a natural outcome of the internalization of cross-network externalities even for a monopoly. The monopoly case is interesting because when there is a single seller, predation does not make sense. The costs in each side and the prices on each side have to be taken into account when evaluating below marginal pricing. In non-transaction markets there is the complication that units of measurement may differ across sides and that pricing is often not related to volume (subscription fees not pay per view pricing in media streaming or cable TV).

An extra uncertainty appears in case of MSP due to the network effect when the number of users becomes an important determinant of the platform efficiency (whatever it is measured). Keeping in mind that a rival should be of the same size, it is unlikely that an equally efficient rival would be found in the market. In the absence of equally efficient competitor the own company's prices and costs are sometimes used and thus the test becomes similar to the "but for" one. On the other hand, by ignoring the effect of the size a competition agency may overlook that in many cases a dominant company is more efficient than its smaller competitors and new entrants need time to reach the level of efficiency comparable to the one of existing firms. The test conclusion would be not to treat their exclusion from the market illegal despite the entrants' potential ability to compete and improve social welfare as in the standard one sided case.

In both transaction and non-transaction markets, the differences in prices from costs can be rationalized from the business model of the platform. These business models should recognize the strong cross-side effects of platforms. At the same time, they bring solutions to of possible informational asymmetries problems in that market. These solutions often provide the central attractiveness of the platform model. For example, in the case of online taxi applications, such as Uber, the reputation system for both drivers and riders, and the third party (the platform) price setting rules, generate great value to all sides. These are market making businesses that create value and efficiency.

2.2.2.5. Tests for efficiency effects

Where cross-platform network effects are strong, mergers of multi-sided platforms might generate efficiencies if they combine separate user bases and increase interoperability. Chandra and Collard-Wexler (2009)⁴⁵⁸ argue that a merged platform might better internalize cross-platform externalities and thus set lower prices to both sides of the market, attracting new users and expanding the market. Andreu and Padilla (2018)⁴⁵⁹ reason that new technology developments resulting from a platform merger may increase consum-

457 Behringer, S., Filistrucci, L. (2015). Areeda-Turner in Two-Sided Markets. *Review of Industrial Organization* 46(3), 287-306

458 Chandra A., Collard-Wexler A. (2009), Mergers in two-sided markets: an application to the Canadian newspaper industry. *Journal of Economics and Management Strategy*, 18(1), 1045- 1070

459 Andreu, E. Padilla, J. (2018) Quantifying horizontal merger efficiencies in multi-sided markets: An application to stock exchange mergers. In OECD, *Rethinking Antitrust Tools for Multi-Sided Platforms*. OECD.

er surplus even while the prices increase, due to creation of a higher quality product. Estimation of efficiency effects might be demanded in investigations of alleged violations of competition law as well. When a conduct is not illegal per se some welfare balancing might be applied to test if the negative effects of the conduct on consumer welfare are outweighed by pro-competitive welfare effects (increase in the company's efficiency, new technology development etc.). The criticism of the approach is related to the technical difficulties of identification, estimation and comparison of the effects. The *Disproportionality test*⁴⁶⁰ states that conduct is anticompetitive when it results in harm to competition that is "disproportionate" to consumer benefits and to the economic benefits to the defendant. This approach remains open the questions about how big the "disproportion" should be and what to do in case they cannot be compared (and even measured, i.e. in case of product quality improvement). The *Elhauge efficiency test*⁴⁶¹ is an attempt to omit the problem of balancing the effects. When exclusionary effect and increase in the defendant's dominance are observed the test asks whether a dominant position is being enhanced or maintained because the defendant is improving its own efficiency (lawful), or because the defendant is impairing the rival's efficiency (unlawful). In practice, however it is very unlikely that an unambiguous cause-and-effect relationship can be identified. This leaves a lot of space for appeals and increases costs of litigation. In the case of MSP it becomes even more difficult as efficiencies generated on different sides of the market should be taken into consideration.

Last, the use of simulation tools to assess the likely efficiencies of a merger for users on each side of the platform requires agencies to estimate cross-platform effects. Surveys or demand estimations can be used to generate these estimates in the way described for market delineation, as mentioned above. In some circumstances tools that do not require estimation of the cross-platform effects – such as event studies – might also be applied.

2.2.3. Conclusion

The growing importance of multisided platforms (MSP) as a leading business model in the digital economy urges competition authorities to update and adapt their tools to evaluate possible anticompetitive effects in both mergers and abuse of dominance cases. The goal of this paper was to present analytical tools to manage competition policy analysis in MSP highlighting the required changes from the usual one sided markets frameworks and tools.

MSPs organize interactions between users so to internalize cross-side network externalities. The actual interaction form and the pricing strategy of the MSP influence the analysis. Learning about the business model of the platform (or platforms), a taxonomy of MSPs from the interaction of and the pricing to the sides of the platform becomes an important starting point. Recognizing whether the MSP under scrutiny is a transaction

460 <https://www.justice.gov/atr/competition-and-monopoly-single-firm-conduct-under-section-2-sherman-act-chapter-3>

461 (OECD, 2005) – see footnote 47

or non-transaction platform steers the decision as to whether considering one relevant market or two relevant markets, respectively. Supply side characteristics of MSP are relevant as well, with the presence of economies of scale and learning by doing, and innovation intensive business models.

The cross-side network effects are central when evaluating substitution patterns and price effect for each platforms and, more important, cross-side effects. These effects influence market definition under the HM test and SSNIP tests. For example, if cross side effects are positive, a price increase on one side that is profitable under a one-side analysis might become non-profitable, as the decrease in sales on side A of the platform reduces sales on side B, typical of cross-side effects, that feedback and reduce sales further on side A. Not taking into account the cross-platform effects would lead to too narrow markets.

Supply side characteristics of MSP, shared with other digital businesses are relevant for understanding platform competitive leverages. These platforms often experience scale and learning economies. This interacts with the innovation based competition dimensions and large startup or fixed costs.

After delimiting markets, concentration measures may not be informative of the market power of the platform. First, platforms are often innovation-based, disrupting businesses and market shares may change rapidly as in any dynamic competition market. Second, MSP are differentiated products, where markups are weakly associated with concentration measures. Third, pricing formulas in transaction or non-transaction platforms show that standard Lerner indices are invalid when calculated using costs (or prices) from one side of the platform. Lerner indices for MSP must incorporate the cross-side effects and the balancing need of the platform to increase demand on one side with higher demand on the other side.

Inferences on anticompetitive price effects from mergers can be obtained expanding price pressure indices for two sided platforms. The GUPPI/UPP like formulae highlight that usual one-sided mergers formulas omit the cross-side effects. These cross-side effects amplify the price pressure increase, say, on price of side A of the merged platform 1, as an increase in demand on side A of merged platform 2, would boost sales in side B of platform 2. This second effect reinforces the incentives to increase prices in side A of platform 1. Only if the cross side effects are not present using the standard formula would not underestimate the effects.

As in any other market, exclusionary practices can be observed in MSP. The nature of MSP requires four changes in the usual investigative tools and effects analysis. First, Price-cost comparisons in MSP are not recommended, as optimal pricing formulas, with no exclusionary or abusive intent generate below cost pricing. The requirement that variable costs from both sides to be taken into account generate additional difficulties as (i) these costs may be hard to measure; (ii) many digital markets operate basically with zero marginal costs and accounting attempts to allocate the fixed costs across platform sides may create statistics that have not been relevant for decision making. Second,

the network effects and issues of single- and multi-homing, generate ‘tipping’ points in the demand for a platform. This can both consolidate exclusionary practices, and make them more effective. Third, platforms often create markets, solving information problems in markets. This institutional role of the platform can generate efficiencies (creating a market) that are very hard to quantify and balance with respect to competition across platforms or a benchmark without the platform. Fourth, learning-by-doing technologies generate dynamic competition exclusionary opportunities, as younger firms have cost disadvantages that may not disappear over time or predatory pricing practices recoup period have lower costs. These business dimensions become central in the analysis of exclusionary practices.

Last but not least, competition policy analysis of MSP should recognize the dynamic nature of competition in such businesses. MSP are often innovations that create monopolization, while at the same time such dominance can be quickly erased by new platforms and business models. While new ways of doing business induce new analytical tools, such innovation markets are not unknown to competition authorities. A look at the less used tools in the known toolbox would help meet the challenge of competition policy analysis of MSP.

Chapter 3: The Private governance of Digital Value Chains

Ioannis Lianos & Klaas Hendrik Eller

3.1. Introduction

While the later chapters of this Report will explore regulatory pathways vis-à-vis digital platforms and ecosystems, this chapter will explain how platforms and ecosystems are animated based on a private governance regime that combines legal, social and technological layers of governance. It will detail to what extent the design of such private governance infrastructure impacts upon the value generation and distribution for the respective platform. It uses a literature review of contributions from economics, economic sociology, and contract governance fused with the 'global value chain' analytical framework to establish a typology of private governance of digital platforms. This typology is tested and explained against the background of an empirical study of the private governance of major digital platforms and ecosystems (cf. Annex).

3.2. A 'Natural order' rhetoric to the private governance of platforms and ecosystems?

Discussions over the private governance of digital platforms and of their ecosystems are merely driven by what we can name the 'natural order' rhetoric, which takes the private governance of the platform, or its ecosystem, as a given, as a natural outgrowth of the business plan adopted by the digital platform, an open or a closed/'walled garden' or something hybrid, which benefits from some type of immunity ('forbearance regime'⁴⁶²) from public intervention, in the form of antitrust or regulation, on the belief that this would jeopardize the innovation and growth generating potential of the digital entrepreneurship, in accordance with the Schumpeterian vision of the role of the State. It is quite ironic that such a 'natural order' vision, which has been previously used to justify the expansion of the market form of organization as the best mechanism to reward productivity and ensure allocative efficiency⁴⁶³, has been used again, here with the different purpose of justifying the superior efficiency (dynamic, productive and allocative) of the private orders established by the digital platforms and emerging out of a Schumpeterian process of creative destruction. According to this view, to the extent that some degree of horizontal competition exists

462 If we follow the terminology used by O. Williamson, *The Mechanisms of Governance* (OUP, 1996), 100.

463 For a poignant critique, see BE Harcourt, *The Illusion of Free Markets – Punishment and the need of Natural Order* (Harvard University press, 2012) criticizing 'the 'illusion' of 'free markets' perceived as a natural order that pre-exists regulation'.

between platforms or different ecosystems, there should be no state intervention, in particular if this will aim to regulate the capture of value by the digital platforms within their ecosystems. Hence, the law stays agnostic as to the allocation of value between the members of the ecosystem, and accepts as justified by superior economic efficiency the existing allocation of risks and rewards between the members of the digital ecosystems or between the various components of digital platforms.

These various ‘natural order’ inspired justifications of regulatory immunity result from an economic conception of the firm, as the most efficient form of organization in the presence of transaction costs and thus costs in using the market (decentralized) system, or of similar approaches explaining the benefits of vertical integration and, more generally, viewing positively the expansion of the boundaries of the firm (centralized form of governance) vis-à-vis those of the market (decentralized form of governance), if these two are conceived as the two main poles of organization (3.2.1.). However, such ‘natural order’ rhetoric may be challenged by the emphasis put, by some business studies literature, on the role of agency and in particular business strategy in explaining the way firms and ecosystems are internally organized. This literature does not share the ‘natural order’ perspective and does not assume the superior efficiency of the internal organization of these private systems of governance (platforms and/or ecosystems). By putting emphasis on the strategic component, this literature opens the black box of the private governance of these platforms/ ecosystems and the way this may be influenced by strategies of value capture. Hence, it puts emphasis not only on value generation but also value capture as important explanatory factors in understanding how these private governance regimes came to exist (3.2.2.).

3.2.1. Transaction cost economics and private governance

As it is well known in Transaction Costs Economics (TCE) literature, Markets and Hierarchies are not distinct concepts but different poles of a *continuum*. Oliver Williamson also introduced a third concept in this taxonomy of organizational forms by suggesting the concept of ‘hybrids’ for forms of organization that do not correspond to the characteristics of the previous two forms⁴⁶⁴. This term, still highly imprecise, covers a variety of organizational forms, such as alliances, collective trademarks, networks, partnerships and relational contracts⁴⁶⁵ which do not institute hierarchies, as each of the participants retains its autonomy, and do not institute markets, as there are formal or informal mechanisms that are set in order to facilitate a long-term coordination and cooperation between the different entities forming the hybrid⁴⁶⁶.

464 O Williamson, ‘Comparative Economic Organization: The Analysis of Discrete Structural Alternatives’ (1991) 36 Administrative Science Quarterly 269.

465 S Deakin et al., ‘“Trust” or Law? Towards an Integrated Theory of Contractual Relations Between Firms’ (1994) 21 Journal of Law and Society 329, 334–35; I R MacNeil, ‘Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law’ (1978) 72 NW. U. L. REV. 854, 857.

466 C Ménard, ‘The Economics of Hybrid Organizations’ (2004) 160 Journal of Institutional and Theoretical Economics 345,

These different forms of organization give rise to different types of contractual arrangements in this context. Because of the difficulty of considering *ex ante* all the possible ‘consequential disturbances’ that may happen in the future in the context of these complex economic relations, involving significant investments that are specific to the relation (‘asset specificity’), contracts will inevitably be incomplete⁴⁶⁷.

‘Long term incomplete contracts require special adaptive mechanisms to effect realignment and restore efficiency when beset by unanticipated disturbances’⁴⁶⁸.

Although these adaptive mechanisms perfect the contract between the parties, at the same time, they impose important restrictions on the autonomy of the parties in the market. If the specific investments are important and there is an important risk of opportunism, the transaction costs will be important and a hierarchy may emerge, thus justifying the expansion of control by the management of the firm.

For the proponents of TCE, the legal regime should take account of the specificities of each of these forms of organization and the existence of transaction costs that would justify, from an economic efficiency perspective, a more integrated form of control and coordination between the parties to the transaction. Accordingly, the law applicable to the internal organization of the firm or hierarchy should be forbearance. Williamson explains

‘whereas courts routinely grant standing to contracts between firms should there be disputes over prices, the damages to be ascribed to delays, failures of quality, and the like, the courts have the good sense to refuse to hear disputes between one internal division and another over identical technical issues. Access to the courts being denied, the parties must resolve their differences internally, which is to say that the firm becomes its own court of ultimate appeal’⁴⁶⁹.

There are two reasons that mainly justify the law of forbearance:

‘(1) parties to an internal dispute have deep knowledge – both about the circumstances surrounding a dispute as well as the efficiency properties of alternative solutions – that can be communicated to the court at great cost, and (2) permitting the internal disputes to be appealed to the court would undermine the efficacy and integrity of hierarchy’⁴⁷⁰.

The identification of these different forms of organization and of their corresponding regimes of contract law has important implications for competition law analysis if one is to adopt this ‘natural order’ rhetoric. Hence, the restriction of the autonomy of some of the members of these hierarchies or network forms of organization are simply viewed

347–350.

467 O Williamson, ‘Comparative Economic Organization: The Analysis of Discrete Structural Alternatives’ (1991) 36 *Administrative Science Quarterly* 269, 271.

468 O Williamson, *The Mechanisms of Governance* (OUP, 1996) 96.

469 O Williamson, ‘The Economics of Governance’ (2005) 95 *American Economic Review* 1, 10.

470 O Williamson, *The Mechanisms of Governance* 100.

as governance tools that aim to avoid organizational failures. Thus, according to this view, they bring transactional efficiencies. Consequently, in the absence of significant horizontal market power, competition law (or economic regulation) should stay away from intervening, as this may compromise the internal organization of this form of governance and the transactional efficiencies this may bring and the entrepreneurial innovation brought by the digital platform. The scope of competition law intervention may be slightly more important in the situation of a network than in that of hierarchies, but for both the 'natural order' rhetoric does not justify the intervention of the State.

The distinction between network and hierarchies should not, however, be overstated. Networks may evolve towards a loose form of hierarchy as they are subject to cyclical developments following which the most powerful participants may bring the network itself under control and create a situation of hierarchy⁴⁷¹.

Property rights theories of the firm also adopt this 'natural order' perspective, viewing the various contractual restraints as control mechanisms for complementary assets⁴⁷², even in situations where there is no asset specificity. As Hart pointed out,

'in a world of transaction costs and incomplete contracts, ex post residual rights of control will be important because through their influence in asset usage, they will affect ex post bargaining power and the division of ex post surplus in a relationship', division which will, in turn, 'affect the incentives of actors to invest in that relationship'⁴⁷³.

By emphasizing the incentives to innovate of the various parties, in particular the digital platforms or ecosystem orchestrators, property rights approaches of the firm may reinforce and expand the call for forbearance and thus expand the scope of immunity from competition law and regulation.

3.2.2. Resource based theory of the firm and GVC approaches

The 'natural order' approaches envisioned above give little emphasis on the strategic element explaining the emergence and expansion of private governance regimes in the digital economy. Under certain circumstances, contractual or other internal governance instruments developed by the platforms and ecosystems orchestrators to govern and manage their organizations may form part of a strategic effort to limit competition by raising barriers and marginalising competing platforms and ecosystems through strategic foreclosure, thus limiting horizontal competition and leading to an exercise of market power, affecting the generation of value. These approaches ignore the impact of these strategies on vertical competition, which relates more to distributional effects (relating to the allocation of the surplus value) or 'pecuniary externalities' that, accord

471 HB Thorelli, 'Networks: Between Markets and Hierarchies' [1986] 7 Strategic Management Journal 37.

472 O Hart and J Moore, 'Property Rights and the Nature of the Firm' (1990) 98 Journal of Political Economy 1119.

473 O Hart, 'An Economist's Perspective on the Theory of the Firm' (1989) 89 Colum. L. Rev. 1757, 1766.

ing to neoclassical price theory (NPT), should be ignored if one focuses on economic efficiency⁴⁷⁴.

However, one needs to also integrate the impact that such contractual or governance tools may have on the capture of value by the different members and components of these private governance systems, if it is important to understand the full social costs of such systems. Furthermore, one may take a non- economic efficiency- based perspective for competition law, promoting other values such as fairness, in which case the distribution of the total surplus value between the different segments of the value chain may become an important concern for competition law, either because of considerations relating to equality of opportunity concerns, or because substantial restrictions to vertical competition may impact on productivity, as an overwhelming percentage of the total surplus value is captured by 'superstar' large firms that enjoy tremendous levels of profitability, without however these accumulated profits being used for productive investments, that could ultimately generate value for consumers and the public at large. In addition, empirical evidence for each of these 'natural order' theories explored in 3.2.1. is relatively ambiguous and quantifying the welfare effects of such private governance regimes remains challenging.

Resource-based approaches of the firm focus more on the strategic element by attempting to explain firm's expansion⁴⁷⁵. The theory perceives firms as having idiosyncratic, meaning not identical, strategic resources. These resources are not perfectly mobile. The primary objective of business-level strategies developed at the firm-level is to create sources of sustainable competitive advantage. Strategies build on the resources, assets and capabilities of firms. Assets can be physical (e.g. plant equipment, location, access to raw materials), human (e.g. training, experience, judgment, decision-making skills, intelligence, relationships, knowledge), and organizational (e.g. culture, formal reporting structures, control systems, coordinating systems, informal relationships). Firm's capabilities are usually considered as a 'bundle' of assets or resources to perform a business process (each of them composed of discrete individual activities). For instance, the product development process involves discrete modules of activity, such as conceptualization, product design, pilot testing, new product launch in production, etc. The firm's most important capabilities are called competences. The firms adopt strategies in order to gain a sustainable competitive advantage. Thus may be understood as a process of developing distinctive competences, competitively valuable capabilities that make a company perform better than its rivals in the industry, thus ensuring its ability to gain abnormal profits for a significant period of time.

This focus on strategy and the conceptualization of the firm's organization as related to the implementation of modular tasks by the resource-based theory of the firm have

474 This is the main lesson of the so- called Coase theorem, which assumes a world of zero transaction costs and individuals that are able to bargain and internalize technological externalities, leaving aside pecuniary externalities: RG Holcombe and RS Sobel, 'Public Policy Toward Pecuniary Externalities' (2001) 29(4) Public Finance Rev 304.

475 B Wernerfelt, 'A Resource- based View of the Firm' (1984) 5(2) Strategic Management J 171; KC Prahalad and G Hamel, 'The Core Competence of the Corporation' (May- June 1990) Harvard Business Rev 79.

profoundly inspired the Global Value Chain (GVC) literature that has emerged out of the study of global supply chains, first in commodities and then in more composite products, taking a political economy perspective. However, the added value of the GVC theory, which breaks with the ‘natural order’ rhetoric of the TCE and property rights’ approach and their belief that private governance systems are developed organically in view of the specific characteristics of transactions and for this purpose are assumed economically efficient is the emphasis put on value capture and more generally the distribution of value that may be an important explanatory factor for the emergence of a specific organization structure.

There are differences however between the resource-based view of the firm and GVC. While the resource-based view of the firm focusses on specific (technological, economic, strategic...) resources, the GVC approach describes an organizational reality, namely the fragmentation of a single economic entity into multiple tiers of suppliers operating in various jurisdictions⁴⁷⁶. Economic trends of outsourcing, offshoring and vertically integrated trade are reflected in an organizational form which – unlike previous cases of an “international division of labour”⁴⁷⁷ becomes institutionalized to a high degree and actually forms the “central nervous system”⁴⁷⁸ of the World Economy. Across industries of production and services as diverse as textile, clothing, retail, footwear, automotive, food and agriculture, seafood, fisheries, electronics, construction, tourism, horticulture or transport, global value chains form the organizational backbone.

Today, “global value chain” refers to both an economic paradigm and a conceptual framework that brings together insights from a broad range of disciplinary fields beyond management, including *inter alia* organizational and economic sociology, political economy, geography, anthropology and development studies. This framework has, however, gained high practical importance by providing the conceptual underpinning of numerous policies and strategic analyses at a national and international level. Individual countries rely on the GVC framework to explore chances of “upgrading”, ie of capturing a more significant share of a given value chain by providing those services that add a relatively larger part of value. Hence, GVCs can ideally serve as an engine of development and technology transfer, thereby offering an opportunity for poverty reduction and job creation by transforming informal to formal economies. In addition, international organizations draw on the GVC framework⁴⁷⁹

476 R. Kaplinsky, Global value chains, where they came from, where they are going and why this is important, Innovation Knowledge Development (IKD) Working Paper No. 68 (2013), 8.

477 F. Fröbel/J. Heinrichs/O. Kreye, Die neue internationale Arbeitsteilung, 1977.

478 O. Cattaneo/G. Gereffi/C. Staritz, Global value chains in a postcrisis world: resilience, consolidation, and shifting end markets, in: dies. (Hg.), Global Value Chains in a Postcrisis World: A Development Perspective, 2010, 3, 7.

479 OECD, Interconnected Economies: Benefiting from Global Value Chains, 2013; International Labor Organization (ILO), International Labor Conference 105th Session, May 2016, Reports of the Committee on Decent Work in Global Supply Chains: Resolution and conclusions submitted for adoption by the Conference, 14-1; OECD & World Bank Group, Inclusive Global Value Chains, Report prepared for submission to G20 Trade Ministers Meeting Istanbul (2015) (available at www.oecd.org/trade/OECD-WBG-g20-gvc-report-2015.pdf).

to assess cross-cutting issues of economic development, trade and investment policies, sustainability, workers' rights, waste and resource circulation as well as gender equality and inclusion. Besides and more generally speaking, GVC analysis has become a heuristic to understand the interconnectedness of global economic activity across time and space and enables to point out dynamics between seemingly unrelated norms, actors and processes. Through this, GVC analysis calls to reformulate policy tools as well as legal concepts to adjust them to the networked-type of the World Economy. This concerns concepts classically referring to isolated and distinguishable markets (such as "abuse of dominance") as well as legal concepts that assume bilateral relations isolated from a transactional context (such as most contemporary theories of contract and also theories of the firm).

While GVC analysis provides many inspirations for theories of the firm, it does not itself claim to fall into this category. Much of its theoretical ambition is devoted to illustrating a dissolution of boundaries of firms based on strategic alliances that combine inter- and intra-firm relations and let relations with key-turn suppliers become so institutionalized that they appear rather as an entity than as individual agents. GVCs invite fundamental questions of agency: Lead firms use various tools, both formal and informal, legal and para-legal, to "govern" their supply chain, yet at the same time, GVCs can easily reach degrees of complexity that are (sometimes deliberately) beyond the control of a single actor. For instance, chip manufacturer *Intel* uses more than 19,000 suppliers in over 100 countries to provide direct material but also tools, machines, logistics and packaging.⁴⁸⁰

Likewise, *Philipps* uses tens of thousands of suppliers many of which operate as heads of "supply chains within supply chains". This ultimately challenges a linear trajectory of a chain as suggested by management studies (which are concerned with the tracing of physical sub-parts and commodities, not social processes and externalities of production).

3.2.2.1. Emergence of the GVC framework

The intellectual origins of the GVC framework and its predecessors stem from World Systems Theory, a historical theory of capitalist development that strongly draws on a spatial distinction between core and periphery to explain hierarchies and power differentials in world trade. The first related concept, "global commodity chain", was developed by Terence Hopkins and Immanuel Wallerstein in the late 1970ies to challenge methodological nationalist understandings of capitalism which focusses on the sequential stages that bridge national markets and global trade.⁴⁸¹

Against this dominant view, they suggested "a radically different presumption", namely to take as starting point a "linked set of processes ... (called) a commodity chain" that includes, eg in the case of clothing, "the manufacture of the cloth, the yarn, etc., the cultivation of the cotton, as well as the reproduction of the labor forces involved in these productive activities". The ground-breaking novelty of this was to oppose the stat-

⁴⁸⁰ Cf K. Crawford/V. Joler, *Anatomy of an AI System* (2018), available at anatomyof.ai/img/ai-anatomy-map.pdf.

⁴⁸¹ T. Hopkins/I. Wallerstein, *Patterns of development of the modern world-system*, Review 1 (1977), 111-145 (128).

ist paradigm of social sciences with its stable units of analysis by taking as starting point a construct that locates and moves between and across such levels of analysis. A particular ambition was to apprehend global-local dynamics.

A subsequent iteration of the concept was coined by Gary Gereffi as “global commodity chains” (GCC), shifting focus from a macrohistorical perspective to industry- and firm-centered analysis of economic organization. With this new framework, Gereffi introduced a distinction between so-called *producer-driven* and *buyer-driven chains* which for long represented the dominant typology. Based on the relative importance of a supplier within a chain, ie the (in)dispensability of the resources a supplier provides, this typology sought to express where power is located within a chain.⁴⁸² Classical examples for buyer-driven chains are textiles and agri-food⁴⁸³ where transaction-specific knowledge is low while producer-driven chains can be found in more technology-intensive industries such as automotive, computers or entertainment technology.⁴⁸⁴

This implied two significant reorientations of the framework: Firstly, GCCs were understood as a form of economic organizing closely linked to technological advances and trade liberalization in the second half of the 20th century, and not similarly as an evolutionary stage in the development of capitalism as pointed out by World Systems Theory with reference to the “long 16th century”. Secondly, the objective of commodity chain research has moved towards an understanding of the organization of global industries, its relevant actors and mechanisms of value capture and distribution. GCC analysis posits that linking up with lead firms in the industry is the most promising path towards development. This has spurred numerous case-studies on national development prospects essentially in Asia, Africa and Latin America and generally created a consistent and policy-oriented body of scholarship under GCC and even more so under the latest refinement of the framework as “global value chains” (GVCs).⁴⁸⁵ Its central addition is the concept of “value-added”: Under ever more competitive global market conditions, it is not the quest for cost reduction per se, but product differentiation and the strategic localization and capture of value-adding segments of the production process that guides market behaviour.⁴⁸⁶ Closely linked to mapping of value-added is the concept of “upgrading”, namely the aspiration of chain actors and national economies to move towards high value-adding segments of a chain (“economic upgrading”) and improve the social quality of employment (wages, workplace safety, inclusion, “social upgrading”) so that they do not stay locked into GVCs at the bottom of the so called ‘Smile Curve’, in particular as in view of the intensive competition at the fabrication level in the context of the ‘servitization’ of manufacturing⁴⁸⁷, the add-

482 Cf J. Bair, The Corporation and the Global Value Chain, in: G. Baars/A. Spicer (eds), The Corporation, 2017, 326, 329.

483 G. Gereffi/Korzeniewicz, Commodity Chains and Global Capitalism, 1994, 97.

484 G. Gereffi/Korzeniewicz, Commodity Chains and Global Capitalism, 1994, 97.

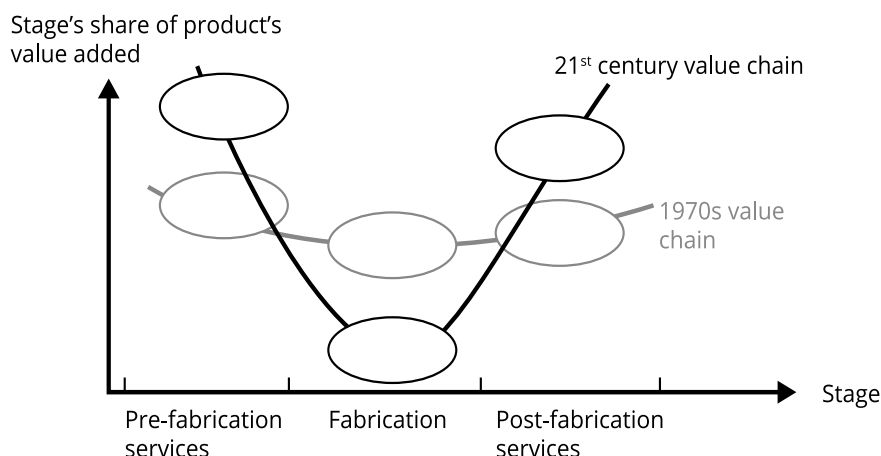
485 J. Bair, Global Capitalism and Commodity Chains: Looking Back, Going Forward, Competition and Change 9 (2005), 153-180.

486 See R. Kaplinsky, Spreading the Gains from Globalization, Problems of Economic Transition 47 (2004), 74ff.

487 See, inter alia, T.S. Baines, H.W. Lightfoot, O. Benedettini & J.M. Kay, The servitization of manufacturing: A review of literature and reflection on future challenges, (2009) 20(5) Journal of Manufacturing Technology Management 547.

ed value has shifted to pre-fabrication and post-fabrication services. (see Figure 3.1.).⁴⁸⁸ The future development of user-based manufacturing (or cloud-manufacturing) and 3-D printing will likely accentuate this trend.

Figure 3.1.: The ‘Smile curve’



Source: Baldwin/Evenett (2012)⁴⁸⁹

Methodologically, the firm-level analysis draws strongly on institutional economics and works on relational contracting especially by *Oliver Williamson* and *Ian MacNeil* to echo an awareness for the plurality of chain structures. This orientation allowed an easier reception among legal scholars of contract and business law who have equally explored those authors⁴⁹⁰ – which, up until today, is one of only a few legal discourses that has stepped up to take GVCs seriously as a conceptual and economic policy challenge.⁴⁹¹

3.2.2.2. Dual Role of Private Governance in the GVC framework

Private governance plays a dual role in the GVC framework: it provides the instruments, legal and other, that animate the value chain and connect chain actors with each other in order to accomplish an integrated production process. Such governance regimes can encompass contracts but also business routines and practices, logistics, reporting documents and practices, as well as reputation and trust.⁴⁹² Functionally, private governance

488 S. Barrientos/G. Gereffi/A. Rossi, Economic and Social Upgrading in Global Production Networks: A New Paradigm for a Changing World, *International Labour Review* 150 (2012), 319; Th. Bernhardt/R. Pollak, Economic and social upgrading dynamics in global manufacturing value chains, *Environment and Planning* 48 (2016), 1220.

489 R. Baldwin/S. Evenett, Value Creation and Trade in 21st Century Manufacturing, in: D. Greenaway (Hg.), *The UK in a Global World*, 2012, 71, 90.

490 Most notably and fruitfully F. Cafaggi, The Regulatory Functions of Transnational Commercial Contracts: New Architectures, *Fordham International Law Journal* 36 (2013), 1557; F. Cafaggi/P. Iamiceli, Contracting in global supply chains and cooperative remedies, *Uniform Law Review* 20 (2015), 135; F. Cafaggi/P. Iamiceli, Private Regulation and Industrial Organisation, in: S. Grundmann/F. Möslin/K. Riesenhuber (eds), *Contract Governance*, 2015, 343.

491 IGLP Law and Production Working Group, *The Role of Law in Global Value Chains: A Research Manifesto*, *London Review of International Law* 4 (2016), 57.

492 Cf eg M. Vandenbergh, The New Wal-Mart Effect: The Role of Private Contracting in Global Governance, *UCLA Law Review* 54 (2007), 913.

regimes combine elements of legislative, administrative and adjudicative power.⁴⁹³ Substantively, private governance regimes set standards of cooperation, stipulate information rights, allow for on-site visits and reporting duties, transfer IP and other assets and generally allocate risks related to incidents along the chain. Besides this role in setting free the economic rationality of production, private governance has increasingly been used to make up for deficits of public regulation in the fields of product safety, environmental protection, labour rights and recently data protection. The integration of such concerns into pre-existing and novel instruments of private governance has not been without frictions and the effectiveness of a private implementation of public goals has so far been controversial.⁴⁹⁴ Despite of this skepticism, private governance today pertains both to the animating and the regulating dimension of private instruments within global value chains.

*Gereffi et al.*⁴⁹⁵, in their leading typology of governance modes of global value chains, select three essential variables to describe governance and change of global value chains: (1) the complexity of transactions, (2) the ability to codify transactions, (3) the capabilities in the supply-base. The typology presented a crucial interest by going beyond the *Coase*'ian dichotomy between firm/market and highlighting network forms of governance in between. Drawing on institutional economics and production network theories, the typology asked how coordination across a geographically dispersed network of suppliers was even possible. It found institutional innovation combining the flexibility of the free market and the trust and stability generated through long-term contractual relations. It is concerned with explaining the modularity of a physical good through patterns of industrial organization and trade. This lies at the heart of the input-output-heuristic used to describe chain governance: Different resources such as technology, material and labour inputs are through of as existing independently of each other and being brought together, processed, assembled, marketed and distributed. At the inter-firm level, coordination can be assured through factors such as asset specificity (mutual dependence), repeat transactions, reputation and social norms.

Based on this, *Gereffi et al.* distinguish between five analytical (not empirical) types of governance: Markets – modular value chains – relational value chains – captive value chains – hierarchy. For each of these types, they inquire into the conditions under which each of them seems likely to arise and conclude by identifying three principal parameters: (1) the complexity of information and knowledge transfer necessary for a particular transaction, (2) the degree of codifiability of this information and knowledge, and (3) the capabilities of the supplier base in relation to the requirements of the transaction.⁴⁹⁶ (see Table 3.1.)


493 Cf L. Bernstein, Opting out of the Legal System: Extralegal Contractual Relations in the Diamond Industry, *Journal of Legal Studies* 21 (1992), 115-157.

494 Cf R. Locke, *The Promise and Limits of Private Power: Promoting Labor Standards in a Global Economy*, 2013.

495 G. Gereffi/J. Humphrey/T. Sturgeon, The Governance of Global Value Chains, *Review of International Political Economy* 12 (2005), 78-104.

496 G. Gereffi/J. Humphrey/T. Sturgeon, The Governance of Global Value Chains, *Review of International Political Economy* 12 (2005), 78, 87.

Table 3.1: Governance types in GVC

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	Degree of explicit coordination and power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	High

Source: Gereffi et al.⁴⁹⁷ (2005)

In **modular value chains**, buyer and supplier relationships are governed comparably to a price-based, market-type structure, while both actors share knowledge of common standards. Such chains are characterized by high complexity of information but likewise high codifiability. This allows buyers to find a capable supply base even for complex requirements, as eg in a turnkey supply business model that accomplishes demanding production without particular oversight.

Relational value chains arise where shared standards and thus easy codifiability do not exist. Hence, quality commands require closer cooperation between buyer and seller based on mutual trust, information exchange, reputation and particular contractual regimes. Typically, relational value chains can be found in the development of new products, such as prototypes.

Captive value chains can be found when supplier capabilities are relatively low while the ability to codify and also the complexity of the production process are high. Here, the supplier needs to cooperate with the buyer and cannot easily switch to different markets.

Based on this matrix, it becomes possible to identify how common dynamics with respect to one or several of these parameters (eg an increase in the complexity of transactions) impact on the governance structure of the chain⁴⁹⁸:

3.2.2.3. Explanatory Potential of the GVC approach

The GVC framework is a powerful methodology to engage in a mapping exercise of the respective actors who cooperate in a particular value chain and to describe the power relationships between them. In particular, the GVC framework has been widely used to investigate the parameters which impact upon issues of participation, rent distribution, and development. Also, it has identified how innovative types of normativity and private

497 G. Gereffi/J. Humphrey/T. Sturgeon, The Governance of Global Value Chains, Review of International Political Economy 12 (2005), 78, 87

498 G. Gereffi/J. Humphrey/T. Sturgeon, The Governance of Global Value Chains, Review of International Political Economy 12 (2005), 78, 90.

ordering, from informal to more formalized, are used to organize coordination.⁴⁹⁹ As an example, the GVC framework has early highlighted the way in which technical and process standards are used by lead firms to reduce complexity of the chain.⁵⁰⁰ Unlike market-type relations, that are essentially governed by price information, such standards codify non-price information to organize coordination. Somewhat analogously, in the field of digital value chains, means of cooperation are introduced into the code design as technical infrastructure of platforms and communicative interfaces between systems (eg application programming interfaces, APIs). At the same time, the firm-level approach and its de-territorialization of concepts of production did not, however, remain uncontested within GVC analysis itself, where scholars claimed a stronger combination of micro- and macro-level factors and most crucially broader entry points of political economy.⁵⁰¹

3.2.2.4. Defining the right unit of analysis for public policy purposes: Digital Value Chains, Platforms, Ecosystems

When seeking to apply the GVC framework to digital value chains, both a promising explanatory potential as well as some obvious limitations become clear – alongside a series of less obvious and still to be detected limitations.

Interestingly, the shift from “digital value chains” to “ecosystems” seems to correlate somehow with an internal debate in the value chain literature in which some suggested a concept of “global production networks”⁵⁰² to replace the “value chain” concept. In advocating this novel concept, scholars sought to express more accurately (1.) the nodal, not linear agency structures in a production process (rather “network”, then “chain”) and (2.) link the analysis of governance modes to studies on governmentality and shared normative practices. The term of “ecosystem” is used to depict highly dynamic types of “entangled alliances” between companies irrespective of regional and sectoral attribution, characterized by both path dependency and high volatility.⁵⁰³ Digital ecosystems describe a constellation of products, organizations and people across industry clusters which are connected through a digital platform. Ecosystems sell holistic “outcomes”, such as access to safe mobility, rather than fragmented products, such as automotive, service plans and insurances.

At the same time, the GVC framework can only be transposed with a cautious awareness for some of its limitations. Firstly, the typology by Gereffi *et al.* corresponds to a

499 F. Mayer/G. Gereffi, Regulation and Economic Globalization. Prospects and Limits of Private Governance (2005), in: G. Gereffi (eds), *Global Value Chains and Development*, 2018, 253-275.

500 S. Ponte/P. Gibbon, Quality standards, conventions and the governance of global value chains, *Economy and Society* 34 (2005), 1-31.

501 J. Bair, *Global Capitalism and Commodity Chains: Looking Back, Going Forward*, Competition and Change 9 (2005), 153-180; P. Dicken/Ph. Kelly/K. Olds/H. Wai-Chung Yeung, Chains and networks, territories and scales: towards a relational framework for analysing the global economy, *Global Networks* 1 (2001), 89-112.

502 N. Coe/P. Dicken/M. Hess, *Global Production Networks: Realizing the Potential*, *Journal of Economic Geography* 8 (2008), 271; N. Coe/H. Yeung, *Global Production Networks*, 2015.

503 <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/managements-next-frontier>.

firm-level analysis, leaving both macro-level impacts as well as interpersonal preconditions such as inculturation practices of supply chain managers outside of the picture. Secondly, and even more crucially, the role of data is a significant lacuna, not only in explaining digital value chains but growingly also for data-driven manufacturing. Data (access) becomes the currency of power along the chain and decisive for the distribution of rents.

In fertilizing the GVC framework for digital value chains, a few adjustments appear crucial:

- (1) Platforms have both their business model and their very operating logic embodied in private governance structures. Hence, the role of private governance is different and even more crucial than in the world of physical production. In physical production, the value chain becomes an instrument to optimize profitability in the production of a given good and private governance is used to orchestrate production resources to realize benefits from outsourcing. Under the lean production paradigm, value chains can relatively easily be subdivided into sequences or delivery steps which string together. In digital value chains, private governance only brings the platform operability into being, it *constitutes* the product, rather than merely *optimizing* its production.
- (2) As a consequence, the fragmentation of product value chains into different “tiers” finds no correspondence in the digital value chain. Instead of sequences of production (“tracing a commodity”), the data value chain can be modelled around steps of data treatment: data acquisition, analysis, curation, storage and usage.⁵⁰⁴ Once a platform is in place, these steps coincide and therefor call for a modelling of the business context and relationships between key stakeholders that is not premised on tracing a single information package (as in physical production).
- (3) As a consequence, in the field of platforms, divisions between classical business sectors seem much more fluid, essentially because the usability of data crisscrosses these sectoral boundaries. Platform business models are not geared towards a stable final product (eg an automobile), but dynamic in themselves, easily moving sectors and adding new ones to the portfolio (eg e-commerce platform engaging also in financial services). This is significant from a value chain perspective, which cannot be centered around a final product (or “core competence”) but has to account for the openness or elusiveness of the “final product” through focusing on process and capabilities. While in physical value chains, the underlying dynamic to increase rent capture is “upgrading” (=attempt of a value chain actor to „move up the chain” towards more lucrative segments of the production process), “upgrading” in digital value chains seems to imply to search for activities for which one’s data set is most lucrative.⁵⁰⁵ Rather than “moving up a *given* chain” this means to *expand* the chain as such. In fact, it seems that platforms which have reached a

504 See E. Curry, The Big Data Value Chain: Definitions, Concepts, and Theoretical Approaches, in: J. Cavanillas/E. Curry/W. Wahlster (eds), *New Horizons for a Data-Driven Economy*, 2016, 29, 32.

505 P. Evans/A. Gawer, *The Rise of the Platform Enterprise. A Global Survey*, The Center for Global Enterprise, 2016, at 17.

significant market share in one sector (“bottleneck”) aim at becoming more integrated across other business sectors. As a result of big data as animating logic of platform businesses, an expansion in user numbers (rather than a focus on “premium” users) seems the preferred trajectory of most platforms. Under big data, size not only allows to do similar things on a larger scale, but allows to engage in activities that would be inaccessible on the basis of a smaller data set. Hence, a “lifecycle approach” to platforms which includes phases of growth, financialization and consolidation provides a helpful heuristic.

- (4) For the most part, private law scholarship has focused on the contractual relation between platform and end-user and not adopted an ecosystem perspective⁵⁰⁶ (similarly, in physical production, contract law scholarship has focused on individual contractual relations and neglected the systemic context of the chain). This view needs to be expanded in a two-fold sense: (a) by adopting an ecosystem perspective that encompasses the diverse set of economically dependent actors; (b) by inquiring not solely formal legal relations, but also extra-legal incentives and rules of cooperation, as exemplified by prior work on contract governance.⁵⁰⁷ This heuristic of private governance can then, in a second step, inform a range of legal policies, including competition law, but also data protection, liability, tax, corporate, labour and others.

3.3. Challenging the ‘natural order’ explanation: the regulating role of digital platforms

The development of digital platforms controlling in some cases quite wide ecosystems constitutes one of the characteristics of competitive game in the digital age⁵⁰⁸. These ecosystems and the underlying relations between the various members are quite complex and link different business actors that are present in various markets with different categories of users. Some of these interactions have been theorised as taking place in multi-sided markets, the concept aiming to translate, in market terms, the presence of feedback loops between different users and business actors that generate value through the operation of non-linear complementarities. Hence, these multi-sided markets do not form a natural order that pre-exists the emergence of digital platforms. They result from the building of a specific digital platform business, rather than being linked to a technologically determined outcome (according to the traditional view of economic organisations as having a productive function) or to the nature of the transaction (according to the transaction costs economics view of the firm). Multi-sidedness forms an

506 See eg C. Petersen/V. Ulfbeck/O. Hansen, *Platforms as Private Governance Systems – The Example of Airbnb*, NJCL 2018, 39 et seqq.

507 For a comprehensive state-of-the-art overview cf S. Grundmann/F. Möslin/K. Riesenhuber (eds), *Contract Governance. Dimensions in Law and Interdisciplinary Research*, 2015.

508 See our discussion in Chapter 4.

endogenous choice, which makes some authors to observe that it is better ‘to discuss two-sided “strategies” rather than two-sided “markets”⁵⁰⁹.

If one takes this seriously, the focus should turn from the ‘nature’ of the market to business strategy. Building a successful digital platform business involves various steps: (i) choose the different market sides the platform will be active, (ii) solve the chicken-or-egg problem involving a choice to be made as to which side of the market will subsidize another, (iii) design a business model, and (iv) establish and enforce ecosystem rules⁵¹⁰. We focus here on the fourth issue, which relates more closely to the governance by the digital platforms of their ecosystem of complementors.

Digital platforms do not only compete with each other, but they also compete sometimes with their complementors. By developing platform rules that regulate their interactions with complementors, and also the interaction between complementors, digital platforms are able to manage competition. This provides them control over the market and enables long-term planning. This was traditionally the function of the so called ‘technostructure’ in the conglomerate forms of organisation that emerged in the 1960s expanding in different economic sectors⁵¹¹. The difference here is that this control is not exercised on the different parts of an integrated company or through longer-term supplier and labour contracts, but on value chains formed by formally independent companies present in adjacent markets (complements) to the market on which the digital platform or the system integrator holds a pre-eminent position. This form of managed competition is not only regulated by contract, but also by ‘uncontract’ and technological forms of governance (code).

The development of the digital economy rests on the convergence of the telecommunications value chain with those developed for private and enterprise computing⁵¹². While until the mid-2000s the telecommunications industry used circuit switched (CS) technology and the computer industry packet switched technology (PS), the two forming two separate value chains, the push towards cheaper and more efficient integrated circuits because of progress in the semi-conductors industry and the development of multichip packaging solutions combining several functions into one system led to a co-evolution of the worlds of computing and mobile telephony. What emerged from this gradual convergence are technical platforms, combining together hardware and software along a common architecture based on a three-layer model: an access network layer (for the time being different for telecommunications and computing), a core network layer and a service layer⁵¹³. As Mulligan explains, the function of the platform “is to hide system complexity from those third parties that wish to use the functionality but do not need to implement it themselves”⁵¹⁴. This is achieved by creating applications on top of an operating system via a set of publicly available interfaces that are also known as Application

509 M. Rysman, *The Economics of Two-Sided Markets*, (2009) 23(3) *Journal of Economic Perspectives* 125.

510 M.A. Cusumano, A. Gawer, D.B. Yoffie, *The Business of Platforms* (HarperCollins, 2019), 69.

511 See, J.K. Galbraith, *The New Industrial State* (Princeton University Press, 1967).

512 See, C. Mulligan, *The Communications Industries in the Era of Convergence* (Routledge, 2012).

513 *Ibid.*, 22.

514 *Ibid.*

Programming Interfaces (APIs). This is a set of standalone instructions, routines, protocols, and tools for building software applications indicating how software components should interact for specific functionalities. Conceived as modules, APIs help developers to make calls for code reuse across many different programs even if the code was initially created for a particular problem. This came to prominence after the decision of IBM in 1968 to price its software and services separately from its hardware, a sort of unbundling, among other reasons also in order to pre-empt antitrust enforcement, the company being under investigation since 1967⁵¹⁵. This modular approach also helps the easier and speedier creation of applications by third-party developers and allow them to hook together different parts of the system (e.g. hardware, peripherals and software)⁵¹⁶. As the architecture of networks becomes more software-based than hardware-based, the interface definition also moves from hardware to software and consists in the “handling of ‘bits’” (a small piece of information)⁵¹⁷. Developers do not need to know the details of the interaction of the hardware with the software. The technical platform handles this on their behalf through the APIs. Vertical connection between nodes on these platforms enabled by APIs allow for the automatic flow of information between the different actors in the value chain.

To the extent that the system relies on open interfaces, the boundaries of these value chains are not delineated by the limits of the organisation, or contractual arrangements with suppliers and customers, but remain flexible, the length of the value chain being determined by the degree of the openness of APIs. Mulligan coins the term ‘participatory value chain’ to show how open interfaces and open APIs reinforce the role of the end-user consumer and transform digital value chains from producer-driven to buyer-driven. Indeed, “(i)n actual fact, each time an end-user selects a specific service, they are activating different parts of different value chains”⁵¹⁸.

These interfaces allowing the different parts of the platform to work produce both demand side economies of scale, as end-users value compatibility *within* the same platform in order to be able to use different applications, and supply-side economies of scale, which result from the need to ensure interoperability *across* different technical platforms⁵¹⁹. The interfaces connecting different parts of a platform may therefore be horizontal (allowing the constitution of platforms by several different companies present in various segments of the industrial structure), or vertical (connecting the service layer with core networks and used to develop complementary products and services)⁵²⁰.

Open interfaces could thus be considered as substitutes to formal contracting. They offer the ‘glue’ that holds the digital value chain together, “(s)ervices built on open APIs essentially function(ing) as a string of bargaining relationships between the different

515 W. E. Steinmueller, *The U.S. Software Industry: An Analysis and Interpretive History* (March 14th, 1995), available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.104.186&rep=rep1&type=pdf>

516 See, C. Mulligan, *The Communications Industries in the Era of Convergence* (Routledge, 2012). 23.

517 Ibid., 55.

518 Ibid., 26.

519 Ibid., 53.

520 Ibid., 54.

actors involved in the service (and any competing service)”⁵²¹. They are also at the origin of new markets between companies seeking to find flexible ways to handle dynamically the uncertainty of technological change by sharing small amounts of data on an ongoing basis, between themselves and with the developers, without this requiring them to contracts and thus incur transaction costs. Technology and code are used, instead of contracts, in order to establish connectivity between the different components (and companies) forming the platform and between the complementors and the platform⁵²². As Mulligan explains, APIs ‘allow for the knowledge contained within different technical systems to become unembedded, creating the possibility for many different economic entities to combine and share their data’, meaning that ‘knowledge is no longer tied to one digital system’⁵²³. This informal nature of these arrangements may nevertheless become source of power for ‘system integrators’, such as digital platforms. These finish by co-ordinating a vast amount of economic activity ‘outside the boundaries of the legal entity in terms of ownership’⁵²⁴ but also outside formal contractual ties.

The convergence of computing and telecommunications, in recent years, and the broader process of convergence with Artificial Intelligence and the Internet of Things (IoT) has profound implications on the constitution of digital value chains. The emerging information-driven value chain may trigger a process of competition and concentration across industrial boundaries. Telecommunication companies/mobile network platforms will enter into ‘competitive clashes’ with computing platforms, cloud computing platforms, mobile broadband platforms etc., each of them competing in order to become the new system’s integrator⁵²⁵. The industrial structure that will emerge will very much result from the way each of these actors will handle APIs and in particular the process of standardisation in order to handle the technical complexity of their interaction. The process is different in the communications industry in comparison to the computing industry. The former traditionally followed a model of cooperative standardisation with the development of industry fora to establish ground rules for global standards. In contrast, the latter followed a *de facto* standardisation approach enabling some companies whose proprietary technology became popular to have this accepted as an industry standard, thus raising the risks of market tipping.

To the extent that APIs allow a platform to be used by more people and companies, thus intensifying its network effects, a strategy of open APIs may become a significant source of market value, as a rapidly growing market share attracts financial investors. The role of system integrator offers, in particular, important opportunities for surplus value that would be generated not so much by a better use of the company’s assets mainly but by the exploitation of the business ecosystem relying on the infrastructure of the specific technical platform. Strategies of control over APIs and interfaces therefore provide the

521 Ibid., 26.

522 Ibid., 58.

523 Ibid., 303

524 Ibid., 58.

525 Ibid., 119 (referring to T. Bresnahan & S. Greenstein, Technological Competition and the Structure of the Computer Industry, (1997) 47(1) Journal of Industrial Economics 1).

foundations of the private governance systems that emerge in order to organise the process of value extraction.

3.4. A Typology of private governance systems: a theoretical perspective

The *Gereffi* framework establishes a typology of governance modes, which in essence concerns the relations between the lead firm and its principal, ie first/second tier suppliers. “Governance” here denotes the bundle of instruments, both legal and other, that allow a lead firm to coordinate its chain. Such tools overcome in part the boundaries of privity of contract and have been described as “contract boundary-spanning”⁵²⁶ in legal terminology. While the emergence of such tools seems intuitive from a perspective of institutional economics, the type of governance can be challenged on normative grounds: Does a lead firm’s governance type provide for sufficient leverage to implement sustainability requirements along the chain? Who can challenge the adequacy of a governance regime that reaches beyond a bilateral contract? Who (and how) ought to evaluate the effectiveness of a governance regime?

For the reasons outlined above, the typology by *Gereffi* cannot be transposed one-by-one to digital value chains and even more so to ecosystems, since it presupposes a segmented linearity of physical production which seems misleading in the face of data-driven business models. In other words, even an ecosystem with a strong centralized power locus will not amount to a degree of hierarchical control as imagined in the “hierarchy” model by *Gereffi* and even the most heterarchical ecosystem will not follow mere “market” transactions as in *Gereffi* since the ecosystem’s infrastructure will require coordination beyond mere spot-relations. In addition, both the tools as well as the substantive rules of governance will differ for digital value chains because of a novel incentive and revenue structure (with customers often paying through their data, thereby becoming part of the value generating process). Furthermore, the centrality of technology and code offers an additional venue to implement governance by design, such as through the steering power of search algorithms, customer reviews or transparency rules regarding transactional data. Ultimately, the stakes of governance are recalibrated when digital platforms become gatekeepers for entire industries or social practices (such as messaging or online dating), shifting the relevant mechanisms of control from individual clauses through contract law and unfair terms to business and governance models through competition law more broadly.⁵²⁷

This makes it ever more crucial to not identify governance with formal legal rules but to think of governance as the interplay between positive rules (of varying degree of formality) and spaces of “ungovernance”, ie spaces which appeal to and incentivise actors in an ecosystem who might be insensitive to strict governance rules. Generally speaking, three levels of governance can be distinguished: (1) **contractual governance** (as mani-

526 Cf J. Salminen, Contract-Boundary-Spanning Governance Mechanisms: Conceptualizing Fragmented and Globalized Production as Collectively Governed Entities, *Indiana Journal of Global Legal Studies* 23 (2016), 709-742.

527 See eg most recently T. Höppner/P. Westerhoff/J. Weber, Taking a bite at the Apple: Ensuring a level-playing-field for competition on app stores (May 13, 2019), <http://dx.doi.org/10.2139/ssrn.3394773>.

festated in specific clauses, such as on exclusivity, royalties or termination); (2) **soft and informal governance** (including aspects of community-building, standards of behaviour, perks and reputational governance) as well as (3) **technological governance** (as imposed through the technical interface of the platform, implemented eg through the control of APIs, algorithms, patents, etc.).

Overall, a governance typology for ecosystem governance inspired by Gereffi could be situated on a continuum ranging from “participatory/collaborative” via “relational governance” to more “captive/intrusive” governance. Those types will differ with respect to the following features that appear as crucial and allow to base a preliminary typology upon them: (1) entry and exit barriers of the ecosystem; (2) degree of formality and transparency of governance instruments and conditions, (3) degree of customizability of the governance model and the platform use; (4) price model; (5) functionality of dispute mechanisms.

	Entry/exit barriers (performance standards, community-oriented regulation/lock-in effect, switching costs)	Transparency of governance instruments and conditions	Degree of formality of cooperation/degree of appeal to extra-legal norms (trust, reputation)	Customizability	Price model	Function of dispute mechanism
Participatory/collaborative governance	Low	Transparent	Informal	Low	Finance	Learning
Relational governance	↓	↓	↓	↓	↓	↓
Captive/intrusive governance	High	opaque	Formal	High	Data	Deterrence

This typology will be tested against a series of case-studies of platforms of different nature and from different business sectors.⁵²⁸ The studies include *Google/Alphabet* (search and internet services), *Amazon* (online retail and cloud computing), *Airbnb* (short-term rentals), *Tinder* (online dating) as well as *Sberbank* (financial services). The guiding question for these studies was to understand how the governance regime (contractual, soft/informal and technological) of an ecosystem affects the allocation of value and how it is co-shaped through the functionality of the ecosystem and its regulatory environment, including eg platform liability rules.

528 For a helpful categorisation cf P. Evans/A. Gawer, *The Rise of the Platform Enterprise. A Global Survey*, The Center for Global Enterprise, 2016: “transaction”, “innovation”, “integrated”, “investment”.

3.5. Beyond the ‘natural order’ rhetoric: a (legal/technology) institutional perspective

3.5.1. Contractual governance – Legal institutionalism

With respect to digital platforms, even more so than in bricks-and-mortar economy, market dynamics and characteristics can no longer be regarded as stable, pre-existent and emanation of a natural order. Such an essentialist view has recently faced criticism by approaches of a “legal institutionalism” which have identified certain institutions as backbone and central characteristic of capitalism and highlighted the role of law in establishing and maintaining them.⁵²⁹ Institutions mark the settings of human interaction which are governed by respective operating rules. Institutions, here, appear as “part and parcel of any mode of production”⁵³⁰, they shape, rather than merely follow, modes of production. For instance, behind technology as driving force of economic innovation, legal institutionalism points out that without property rights, finance and other legal parameters, technological innovations are unlikely to have emerged.

In this, “legal institutionalism” builds on previous institutional accounts of law (C. Schmitt, M. Hauriou, S. Romano, N. MacCormick) and both transposes and profoundly sharpens the institutional economics’ insights into law.⁵³¹ Unlike *Williamson*⁵³², who – drawing on *Coase*⁵³³ – established the role of law in building economic institutions but saw law and particularly private ordering as essentially serving efficiency between firms and markets, “legal institutionalists” claim a more holistic understanding of the law and its basic concepts as social and economic institutions. While taking private ordering in its current pervasiveness and also practical appeal serious, “legal institutionalists” likewise reflect on the power structure implicated in private ordering.⁵³⁴ Legal rules are evaluated not solely in their influence on rational acting individuals, but in their institutional effects, namely those effects that under realistic assumptions arise from the aggregate use of the particular rights and entitlements that a legal rule confers. In this light, for instance, the circulation of knowledge in society crucially depends on the design of institutions, among them legal institutions such as competition law.⁵³⁵

A central tenet of these approaches that proves valuable for the digital era is to conceive of the legal status quo as one out of many possibilities of legal design, realized to some

529 S. Deakin et al., Legal institutionalism: Capitalism and the constitutive role of law, *Journal of Comparative Economics* 45 (2017), 188-200.

530 G. Hodgson, Conceptualizing capitalism: A summary, *Competition & Change* 20 (2015), 37-52.

531 D. Ruiter, Economic and legal institutionalism: What can they learn from each other, *Constitutional Political Economy* 5 (1994), 99-115.

532 R. Coase, The nature of the firm, *Economica* 4 (1937), 386-405; R. Coase, *The Firm, the Market, and the Law*, 1988.

533 O. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*, 1985.

534 S. Deakin et al., Legal institutionalism: Capitalism and the constitutive role of law, *Journal of Comparative Economics* 45 (2017), 188, 189 et seqq.

535 Cf eg D. Wielsch, Private Governance of Knowledge: Societally-Crafted Intellectual Properties Regimes, *Indiana Journal of Global Legal Studies* 20 (2013), 907 – 940.

degree by choice and by path dependency. Hence, when confronted with novel social or economic phenomena, their current emanation needs to be thought of as legally constructed and potentially amendable by legal means. As an example, with regard to the governance of global value chains, the “Research Manifesto” by the “IGLP Working Group on Law and Global Production” has argued that

“law is more than an ‘external’ or contextual factor shaping the strategic decision-making of firms ‘inside’ GVCs. Rather, we argue that law resides at the heart of the GVC phenomenon—it is the vehicle through which value is generated, captured and distributed within and between organisational and jurisdictional domains, and diverse and geographically disparate business operations are coordinated and governed.”⁵³⁶

The contractual relations under a given ecosystem depend on its functionality. Take the example of a matchmaking platform, such as Amazon (retail), Airbnb (short-term rentals) or Tinder (dating): Both the “supplier” and the “client” (or in the case of Tinder: both users) are bound to the platform by standard contract terms (boilerplate). Those terms stipulate the rights and duties of the platform and the respective participant, formulate standards of behaviour for the community, including ways of exiting and sanctions. With the platform itself being a counterparty in these contracts, they establish the infrastructure required to realize the business plan (“vision”) of the platform on a “take-it-or-leave-it” basis. What appears as community standards is *de facto* put in place through the central regulatory capacity of the platform.⁵³⁷ The more “community-life” a platform can generate, the higher its consumer loyalty and also its data set (through reviews, social tracking, usage rates) will be.

The contract concluded between supplier and client is itself largely regulated or co-regulated by the platform.⁵³⁸ Both supplier and client are provided with a fully-fledged regulatory framework that their transaction is based upon, including primary rules, rules of interpretation and oftentimes dispute resolution. Typically, these rules serve as default rules and can be customized in some respect, whilst not in others. This entails a risk of abuse of a dominant position of a platform which can steer – either through binding rules or through the effects of defaults – the contracting member’s behaviour, eg through beneficial pricing or an allocation of risks that primarily serves the platform (eg by attracting more members on the demand/supply side).

The role of contract governance is crucial in part because classical points of intervention of national legislation are not effective with regard to online platforms, eg because they (try to) circumvent guarantees of labour law (*Uber*) or tax law (*Airbnb*). The significance of private governance in online platforms has been endorsed in the 2016 Communication on Online Platforms by the European Commission and seems unlikely to change very soon. In this Communication, the Commission stated that “principles-based self-

536 IGLP Law and Global Production Working Group, The role of law in global value chains: A research manifesto, *London Review of International Law* 4 (2016), 57, 60-61.

537 M. Grochowski, Spontaneous Order in the Sharing Economy? A Research Agenda, *Zeszyt* 49 (2018), 75 et seqq.

538 Cf M. Grochowski, Spontaneous Order in the Sharing Economy? A Research Agenda, *Zeszyt* 49 (2018), 75 et seqq.

regulatory/co-regulatory measures, including industry tools for ensuring application of legal requirements and appropriate monitoring mechanisms, can play a role⁵³⁹ in the future regulatory framework. While the majority of rules within terms & conditions are global in reach, it has become common to add national specifics which reflect regulatory environment, national case-law and rules on unconscionability.⁵⁴⁰

The mechanisms of legal control of private governance depend on the nature of the rules. While in B2C contracts, Europe and other jurisdictions review clauses under a criterion of fairness and many jurisdictions contain sectoral rules of privacy protection, in B2B contracts only very limited reasons for unconscionability exist. At the same time, there are increasing similarities between types of clauses used by platforms which are perceived as unfair by other actors in the ecosystem. A survey conducted by the European Commission⁵⁴¹ found that in B2B relationships, contract clauses from standard T&Cs were deemed problematic by businesses insofar as (1) rules cannot be negotiated; (2) platforms often reserve the right to unilaterally change their T&Cs; (3) clauses require a 'bundling' of subscriptions to various services of the platform, including auxiliary services, and may prescribe proprietary payment systems, data clouds or communication channels; (4) platforms such as travel agencies or hotel booking sites use 'parity clauses' which impose a price at least as low as offered through other distribution channels; (5) rules restrict the access to and/or use of data, thereby hindering a switch of platforms. Cross-cutting issues were unclear termination and suspension conditions and procedures (as illustrated by the case-study on Amazon) and generally complex and vague terms.

Given the recurrence of typical clauses across platforms, recent initiatives to formulate model clauses for digital platforms may have promising leverage. Those include the European Law Institute's "Discussion Draft of a Directive on Online Intermediary Platforms"⁵⁴² as well as the EU Proposal for a Regulation on promoting fairness and transparency for business users of online intermediation services (P2B Regulation).⁵⁴³ Importantly, model clauses will typically (although not necessarily) be limited to a formal, contractual level of governance and leave more informal, social and technological levels unaffected. This is a strong argument in favour of mobilising competition law and its particular sensitivity towards filigree emanations of economic power for digital platforms, alongside more conventional and long-standing instances of contract law and consumer protection.

539 <https://ec.europa.eu/digital-single-market/en/news/communication-online-platforms-and-digital-single-market-opportunities-and-challenges-europe>.

540 See eg on limitation of liability clauses which are subject to an unfair terms control in the EU Sect. 17 of the Airbnb Terms of Service for European Users.

541 Cf European Commission, Business-to-business relationships in the online platforms environment – Legal aspects and clarity of terms and conditions of online platforms, Report of an engagement workshop hosted by the European Commission, 14 November 2016, https://ec.europa.eu/newsroom/document.cfm?doc_id=43829.

542 See, https://www.elsi.uni-osnabrueck.de/projekte/model_rules_on_online_intermediary_platforms/discussion_draft.html.

543 COM(2018) 238 final.

3.5.2. Contract automation under big data: The “uncontract” (Zuboff)

Theories and practices of contract governance have relied so far on governing other individuals or entities through mechanisms of control, incentives, sanctions and rewards. Contracts, and even more so the contractual regime that binds contract together, serve to reduce uncertainty about the future behaviour of others, by formulating expected standards of behaviour coupled with varied mechanisms to lend them effectivity. Novel, IT-based forms of interaction such as through blockchains challenge this view of contracting. Here, the personal dimension of interaction is increasingly supplanted by technology, allowing to predict behaviour of others through data, not the “contract” rules, and “enforcing” them automatically by technological means. Take, for instance, the “enforcement” of a decision by the dispute body of ICANN (UDRP)⁵⁴⁴ through the deletion of a domain or the real-time adjustment of car insurance premiums based on the insurance holder’s driving style. Zuboff⁵⁴⁵ has termed such phenomena that subvert the essence of contracting an “uncontract”, rather than calling them a new form as contracting. As she describes it:

‘The uncontract is not a space of contractual relations but rather a unilateral execution that makes those relations unnecessary. The uncontract desocializes the contract, manufacturing certainty through the substitution of automated procedures for promises, dialogue, shared meaning, problem solving, dispute resolution, and trust: the expressions of solidarity and human agency that have been gradually institutionalized in the notion of “contract” over the course of millennia. The uncontract bypasses all that social work in favor of compulsion, and it does so for the sake of more-lucrative prediction products that approximate observation and therefore guarantee outcomes’.

Hence, the bilateralism of contracts – which had, to be sure, already become a fiction in many instances, but still underpins the theories and doctrines of contract – ultimately loses all its ground. Instead of a – however fictitious – “meeting of the minds”, neither “minds” nor their “meeting” seems necessary in case of “uncontracts” that are “unprecedented in their ability to impose unilateral power”⁵⁴⁶ because of technological or economic dependence. In other words, contract governance needs to reflect that not only the whole lifecycle of contracts is subject to digitalization⁵⁴⁷, but that basic elements of contracts are absorbed within technological mechanisms of compliance, algorithmic governance or governance by design. Further examples can be drawn from the broad field of smart contracts, eg in an emerging “lex cryptographia”⁵⁴⁸.

544 <https://www.icann.org>.

545 S. Zuboff, *The Age of Surveillance Capitalism*, 2019, 208 et seqq.

546 S. Zuboff, *The Age of Surveillance Capitalism*, 2019, 314.

547 S. Grundmann/P. Hacker, *Digital Technology as a Challenge to European Contract Law – From the Existing to the Future Architecture*, *European Review of Contract Law* 13 (2017), 255-293.

548 Cf eg A. Wright/P. De Filippi, *Decentralized Blockchain Technology and the Rise of Lex Cryptographia* (March 10, 2015), available at <http://dx.doi.org/10.2139/ssrn.2580664>.

Such practices for the most part fly under the radar of control of contract and consumer protection law. “Uncontracts” are no isolated parts of T&Cs that can easily be struck down as in a blue-pencil-test, but (a) become integral parts of the platform service itself that (b) don’t present themselves as identifiable contractual device any longer. Instead of putting each and every one of such “uncontracts” under scrutiny individually, regulatory responses need to address them at a more abstract, overarching level. Towards this, public governance, most notably through competition law can determine permissible practices, while standards of rule of law can establish procedural guarantees vis-à-vis technological processes. The current awakening of competition law for the digital era illustrates that perceptions of technology as “law-less spaces” – as was misleadingly assumed in the early days of the Internet – have been overcome. Competition law placed within a broader, inclusive agenda can formulate transnationally operative “constitutional” rules for digital platforms and markets that subject them to the rule of law.

Such meta-level approach can ultimately also be embedded in the private governance of platforms themselves and add a self-reflexive element to their operations. One can think of combinations between substantive (eg ethics codes in venture capital), procedural (platform-related dispute mechanism) or institutional (eg Ombudsman) rules and instruments. Examples would be the content screening undertaken by Facebook partly on its own account and partly under the influence of national legislation, such as the pioneering German *Netzwerkdurchsetzungsgesetz* (NetzDG).⁵⁴⁹ This law requires commercial social networks to establish transparent procedures for dealing with complaints about illegal content such as hate speech. Furthermore, social networks are required to (1) check complaints immediately; (2) delete „obviously illegal” content within 24 hours and (3) delete any illegal content within seven days after checking and block access to it. Documentations regarding each complaint and content need to be stored for at least ten weeks.

Interestingly, the regulatory debate around digital platforms converges strongly on this point with the debate around a fairer or more sustainable private governance of global value chains of production. After more than a decade of relatively toothless experimentalism with various instruments of Corporate Social Responsibility (CSR), a reinvigorated interest in and engagement with possible legislative interventions can be observed.⁵⁵⁰ These depart in a way from mere market-based forms of regulation through markets for ethical standards and reputational sanctions, while at the same time acknowledging the challenge of complexity which requires a certain degree of participation and wilful compliance by lead firms. The regulatory debate around GVCs certainly shows that regardless of the legal origin of regulatory initiatives – be it in legislation, transnational standards such as by the ILO or corporate codes of conduct – only those regulations can be effective that make a difference in the private governance regime of a chain. Likewise, for digital platforms and ecosystems, different pathways of regulation exist, but

549 https://www.bmju.de/SharedDocs/Gesetzgebungsverfahren/Dokumente/NetzDG_engl.pdf?__blob=publicationFile&v=2; for a comprehensive overview of legal issues cf M. Eifert/Th. Gostomzyk (eds), *Netzwerkrecht. Die Zukunft des NetzDG und seine Folgen für die Netzwerkkommunikation*, 2018.

550 Eg G. Sarfaty, *Shining Light on Global Supply Chains*, *Harvard International Law Journal* 56 (2015), 419.

again, a promising objective is to implement fairness *within* the very private governance of the respective platforms and ecosystems.

3.6. Drawing on the empirical evidence: a bestiary of governance tools in digital platforms and ecosystems

Despite the wide array of sectors in which the studied platforms and ecosystems are active, there are significant similarities that emerge as patterns of governance.

To begin with, it is noticeable how much the factors of size, experience, and establishment impact upon the governance regime. Typically, start-ups will follow a more participatory/collaborative scheme while the global market leaders deploy their enhanced bargaining power through more captive/intrusive governance models. Hence, it is essential to include a genealogical element of platform growth into the analysis to be able to engage with changes of business strategy (such as in pricing models) that occur across phases of growth. This gap is even bigger between platforms which are genuinely digital from the start and the incumbent firms of the manufacturing and asset economy which growingly seek to include platform elements to develop their business model.

Secondly, it is worthwhile to distinguish between (a) relationships between the platform and the businesses (P2B) forming part of their ecosystem and (b) the relationships between the platform and their customers/consumers (P2C). Both relations are ruled by an assemblage of codified, formal as well as informal rules and practices as well as technological infrastructure. Yet, they centre around different legal matters of concern. While P2B relations face little regulatory constraints outside of competition law, P2C relations are more thoroughly put under scrutiny by consumer and privacy law.

3.6.1. Patterns of governance in P2B relations

3.6.1.1. Translating business models into governance patterns

As regards P2B relations, the case studies all pertain to platforms that are constitutive for their respective key market(s) segment(s). Terms of Service (T&Cs) here animate a technology-based, digital network that ensures a steady supply of platforms with infrastructure, data and clients beyond corporate ownership or hierarchical steering. The private governance regimes are designed to enable agility in terms of the business model by placing the burdens of investment in specialization in classical business sectors on the platform's contractors (eg the Airbnb hosts, the Marketplace sellers, the Uber drivers, the Android developers) while allowing the platform to proceed to cross-sectoral investments that form an ecosystem.⁵⁵¹

The contractual governance regimes of P2B relations:

⁵⁵¹ Cf <https://medium.com/@heckerhut/modes-of-contractual-governance-in-an-on-demand-service-economy-1833629f379b>.

- (a) create loyalty to the platform and consolidate it as a privileged channel for marketization of the respective goods and services. Towards this, terms set certain entry barriers by asking for an alignment with platform-specific ways of presenting one's business, demand price parity, sometimes even exclusivity, the right to use IP protected material of the business⁵⁵² and the subscription to further but not necessarily related services by the platform ('bundling'), each of these also reinforced in the platforms technological design;
- (b) implement dispute mechanisms that are complex and little transparent, thereby fostering non-legal or soft incentives of the parties. For legal claims, arbitration clauses and a waiver of class actions are common. Pre-legal claims are often handled pursuant to internal dispute proceedings that lack fundamental principles of rule of law (provision of grounds, transparency), especially given the sometimes existential stakes for small businesses, as illustrated eg in the Amazon Marketplace suspension appeal procedure.⁵⁵³
- (c) allow for unilateral adjustment⁵⁵⁴ (including on pricing) and termination⁵⁵⁵, thus giving the platform broad discretion of governance and business development opportunities⁵⁵⁶ over the course of the business relationship while creating high lock-in costs and little inter-platform mobility and data transmissibility⁵⁵⁷ for businesses.

552 Cf Yelp Terms of Service (<https://www.yelp.com/static?p=tos>), Sect. 5B: ('We may use Your Content in a number of different ways, including by publicly displaying it, reformatting it, incorporating it into advertisements and other works, creating derivative works from it, promoting it, distributing it, and allowing others to do the same in connection with their own websites and media platforms ("Other Media")').

553 See infra 3.7.2.3.2

554 Cf Airbnb Terms of Service, Sect. 9.5 ('In certain circumstances, Airbnb may decide, in its sole discretion, that it is necessary to cancel a pending or confirmed booking and initiate corresponding refunds and payouts.');

Apple Developer Agreement (<https://developer.apple.com/terms/apple-developer-agreement/Apple-Developer-Agreement-English.pdf>), Sect. 9 ('Amendment, Communication. Apple reserves the right, at its discretion, to modify this Agreement, including any rules and policies at any time.').

555 Amazon Developer Services Agreement (<https://developer.amazon.com/de/support/legal/da>), Art. 9 (**Term and Termination**. We are entitled to terminate this Agreement and your Program account (including access to your Program account) at our discretion with or without advance notice to you.');

Alibaba Cloud International Website Terms of Use (<https://www.alibabacloud.com/help/faq-detail/42417.htm>), Sect. 4 ('Breaches by User. Alibaba Cloud shall have the right at its sole and absolute discretion to remove, modify or reject any content that you submit to, post or display on the Alibaba Cloud Platform which in our sole opinion is unlawful, violates the Terms, or could subject Alibaba Cloud or our affiliates to liability.');

Airbnb Terms of Service, Sect. 15.4 ('Airbnb may immediately, without notice, terminate this Agreement and/or stop providing access to the Airbnb Platform if (i) you have materially breached your obligations under these Terms, the [Payments Terms](#), our [Policies](#) or Standards, (ii) you have violated applicable laws, regulations or third party rights, or (iii) Airbnb believes in good faith that such action is reasonably necessary to protect the personal safety or property of Airbnb, its Members, or third parties (for example in the case of fraudulent behavior of a Member.').

556 Cf Airbnb Terms of Service, Sect. 1.7 ('Airbnb may improve, enhance and modify the Airbnb Platform and introduce new Airbnb Services from time to time.').

557 Cf confidentiality clauses eg in Apple Developer Agreement (<https://developer.apple.com/terms/>), Sect. 4 ('Confidentiality: Except as otherwise set forth herein, you agree that any Apple prerelease software, services, and/or hardware (including related documentation and materials) provided to you as an Apple Developer ("Pre-Release Materials") and any information disclosed by Apple to you in connection with Apple Events will be considered and referred to as "Apple

3.6.1.2. Interplay between contractual, soft and technological layers of governance

The formal contractual layer is the most significant in P2B relations and ensures the stability of the supply relationship. Soft and technological governance fulfill a complementary role, especially when contractual terms are (sometimes deliberately)⁵⁵⁸ vague or not transparent.

A good illustration of soft governance in the use and potential abuse of a gatekeeper position in an ecosystem is provided by Google's policy towards third-party content providers. Many of them make money from advertising on their websites and are thus dependent on the indirect traffic that is generated by referrals from Google's general or specialized search services. Google uses this dependency to encourage agreements that improve their search results and thus raise the advertising revenue. An example of this can be seen in Google's "first click free" policy, which obligated online news providers to make paid articles available for free when they are accessed over Google Search under the threat of removing the articles from the search results otherwise.⁵⁵⁹ Even though Google has given up on this program, they now offer a centralized subscription service called "subscribe with google",⁵⁶⁰ which rewards participating publishers with higher ranks in the search results of users that have subscribed to that specific service.⁵⁶¹ Two general lessons can be drawn from this example. First, it demonstrates how Google will use the economic dependency of businesses to make them enter into agreements that are beneficial for Google, either by threat (in the case of "first click free") or by reward (in the case of "subscribe with google"). Second, it shows the Google has a strong interest in keeping content available through search, as this gives Google the advertising advantages of a content provider, without bearing the risk of actually providing such content itself.

Technological governance essentially occurs as algorithmic governance in the structuring of listings, the suggestion of price-levels, and the design of the communicative space between businesses and their users.

3.6.1.3. Relevant terms: Data transferability, price-setting, suspension of service/membership

The terms and conditions that are the most highly disputed between platforms and businesses concern the fields of entry/exit barriers through data transferability and the

Confidential Information".); Amazon Developer Service Agreement, Sect. 12 ('You will: (a) protect and not disclose information made available by us that is identified as confidential or that reasonably should be considered confidential; (b) use that information only to fulfill your obligations or exercise your rights under this Agreement').

558 Cf Australian Competition and Consumer Commission, Digital Platforms Inquiry, Final Report, 2019 (available at <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>), 418-420.

559 <https://www.theguardian.com/technology/2017/oct/02/google-to-ditch-controversial-first-click-free-policy>

560 <https://www.blog.google/outreach-initiatives/google-news-initiative/introducing-subscribe-google/>

561 <https://searchengineland.com/google-news-initiative-kicks-off-subscribe-google-efforts-294624>

protection of distribution channels, furthermore rules on price-setting and remuneration and ultimately the suspension of service.

A particularly illustrative case for the protection of distribution channels is provided by Google Play. Android developers that offer their applications through Google Play are charged a transaction fee of 30% for app and in-app product sales.⁵⁶² There will be no transaction fee charged when applications are offered for free, but developers are obliged to keep products available for free when they were initially offered for free.⁵⁶³ Google tries to bind developers to the Play Store by providing them with development tools that are only made available to them under the condition that they will solely be not be used for the development of applications for other platforms (including non-compatible implementations of Android).⁵⁶⁴ This prevents the developers from multi-homing, i.e. offering their app in several app stores such as the amazon app store. Google furthermore explicitly prohibits the distribution “any product that has a purpose that facilitates the distribution of software applications and games for use on Android devices outside of Google Play.”⁵⁶⁵

3.6.2. Patterns of governance in P2C relations

3.6.2.1. Translating business models into governance patterns

In platform-to-consumer (P2C) relationships, contractual governance:

- (a) serves the purpose of community-building in order to consolidate consumer loyalty and extract value from repeated transactions and activities on and off the platform which generate a data set that platforms aim to merge. The purpose of community-building is realised to a large extent through social norms and default rules and incentives that are implemented through technology, eg through a membership platform, ratings and discounts for returning customers. As regards privacy policies, the question of a permissible combination of data collected through third-party accounts is crucial since it allows for a much more substantive data set than the one based on internal data only. Such cross-platform merger of data takes place ie by linking accounts on a platform with accounts on another, such as connecting a Facebook user page with one’s Airbnb account, or through social plugins (‘Like’ button). In its decision on Facebook, the Bundeskartellamt has incriminated Facebook’s practice of subjecting access to its services to the agreement that user data through other Facebook-owned apps and services would be aggregated.⁵⁶⁶

562 <https://play.google.com/about/developer-distribution-agreement.html>; <https://support.google.com/googleplay/android-developer/answer/112622?hl=de>

563 <https://play.google.com/about/developer-distribution-agreement.html>

564 <https://developer.android.com/studio/terms>

565 <https://play.google.com/about/developer-distribution-agreement.html>

566 Bundeskartellamt Decision of 6 February 2019, B6-22/16, https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B6-22-16.pdf?__blob=publicationFile&v=4.

- (b) generally implements far-reaching privacy rules⁵⁶⁷, while being complaisant on other aspects of the consumer experience (with lenient cancellation rules, a right to withdraw from contracts, return purchased items etc). Compared to offline consumer experience, this produces a consumer-friendly impression which distracts from tight privacy policies that are economically much more significant for platforms' business models. Especially bigger platforms generate high levels of trust and discard consumer concerns regarding a lack of liability or discriminatory pricing through extensive insurance guarantees (eg Airbnb, Uber) and special offers.

3.6.2.2. Interplay between contractual, soft and technological layers of governance

In order to translate the P2C business model into governance patterns, formal contractual rules are not sufficient. Rather, platforms use contractual, soft and technological governance forms for very distinctive respective purposes. The contractual level is used to ensure the provision with data and the limitation of business risks by limiting liability. Consumers are given little opportunity to customize or opt-out of data protection and usage rules.⁵⁶⁸ The incentives for consumers to join—and more importantly actively use—the platform are however set through soft and technological tools. Soft governance here includes the social benefits of joining services that follow a network logic, ie community-building, exchange with peers, access to peer recommendations; others include rewards for extensive usage (such as enhanced user status or discounts), accommodating rules, and targeted publicity.

A particular illustration of informal governance is the bond created by social media, notably Facebook, anchored in user habits that make a membership extremely difficult to break. Correspondingly, the type of power that online platforms exercise vis-à-vis users is less one of market share or 'government-like' size, but has rightly been described as 'subtle Foucauldian modes' of power that are grounded in and modify the very routines and practices of individual lives.⁵⁶⁹

Technological governance finally is used for different purposes compared to P2B relations, namely to standardize user communication and behaviour (especially in order to prevent them to leave or circumvent the platform) and to structure and rank the offers or listings that are displayed to a user.

3.6.2.3. Relevant terms: Legal qualification of the agreement, privacy, and liability

In the contractual terms between platforms and users, three issue areas are most crucial for the platform, namely the determination of the its own legal role through the legal qualification of the agreement, liability, and rules on privacy and data exploitation.

567 For a compelling comparison across platforms cf Australian Competition and Consumer Commission, Digital Platforms Inquiry, Final Report, 2019 (available at <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>), p. 380 et seqq.

568 Australian Competition and Consumer Commission, Digital Platforms Inquiry, Final Report, 2019, 427-433.

569 https://newrepublic.com/article/154504/facebook-new-form-power?utm_content=buffer2c632&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer.

Platforms seek to shield themselves from liability from both consumers and businesses through limitation of liability clauses as well as the insistence to provide only matchmaking services without being party to let alone influential in substance on the agreement concluded through the platform (P2C).⁵⁷⁰

Accordingly, platforms use careful wording to express that the main performance is matchmaking, not a substantial service. Yet, the impression generated towards consumers stands in stark contrast to the restriction of liability and the alleviation of the accurateness of the information, ratings etc. For instance, Airbnb denies any responsibility for the quality of its listings, the information and photographs provided or its hosts, even if they are presented as “verified”.⁵⁷¹ At the same time, the matching between strangers for private home rentals hinges largely upon Airbnb’s role as a trust broker. The social expectations created by Airbnb vis-à-vis its own role and the ascription as an intermediary are much more substantial than is reflected in the Terms of Service.

As regards privacy, platforms collect both personalized and non-personalized data. Personalized data is handled with greater caution and restriction; yet, the definition of ‘personalized data’ varies from platform to platform.⁵⁷² A particular matter of concern is the combination of data sets, as powerfully illustrated by the Data Policies of Google⁵⁷³ and Facebook Data Policy⁵⁷⁴ regarding different Facebook Products. Pursuant to its recent merger strategy, Facebook counts among its services today major web services like WhatsApp, Instagram, Facebook Analytics and Ad Reporting. In addition, Facebook collects user data through the ‘Facebook Login’ and ‘Account Kit’, both of which are widely-used tools allowing the login process on third-party websites and apps. Hereby,

570 Cf. Airbnb Terms of Service, Sect. 1.2 („As the provider of the Airbnb Platform, Airbnb does not own, create, sell, resell, provide, control, manage, offer, deliver, or supply any Listings or Host Services, nor is Airbnb an organiser or retailer of travel packages under Directive (EU) 2015/2302. Hosts alone are responsible for their Listings and Host Services. When Members make or accept a booking, they are entering into a contract directly with each other. Airbnb is not and does not become a party to or other participant in any contractual relationship between Members, nor is Airbnb a real estate broker or insurer. Airbnb is not acting as an agent in any capacity for any Member, except as specified in the Payments Terms.”)

571 Airbnb Terms of Service, Sect. 1.3 („While we may help facilitate the resolution of disputes, Airbnb has no control over and does not guarantee (i) the existence, quality, safety, suitability, or legality of any Listings or Host Services, (ii) the truth or accuracy of any Listing descriptions, Ratings, Reviews, or other Member Content ..., or (iii) the performance or conduct of any Member or third party. Airbnb does not endorse any Member, Listing or Host Services. Any references to a Member being “verified” (or similar language) only indicate that the Member has completed a relevant verification or identification process and nothing else. Any such description is not an endorsement, certification or guarantee by Airbnb about any Member, including of the Member’s identity or background or whether the Member is trustworthy, safe or suitable. You should always exercise due diligence and care when deciding whether to stay in an Accommodation, participate in an Experience or Event or use other Host Services, accept a booking request from a Guest, or communicate and interact with other Members, whether online or in person. Verified Images ... are intended only to indicate a photographic representation of a Listing at the time the photograph was taken, and are therefore not an endorsement by Airbnb of any Host or Listing.”)

572 For a comparison cf Australian Competition and Consumer Commission, Digital Platforms Inquiry, Final Report, 2019 (available at <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>), p. 409-410.

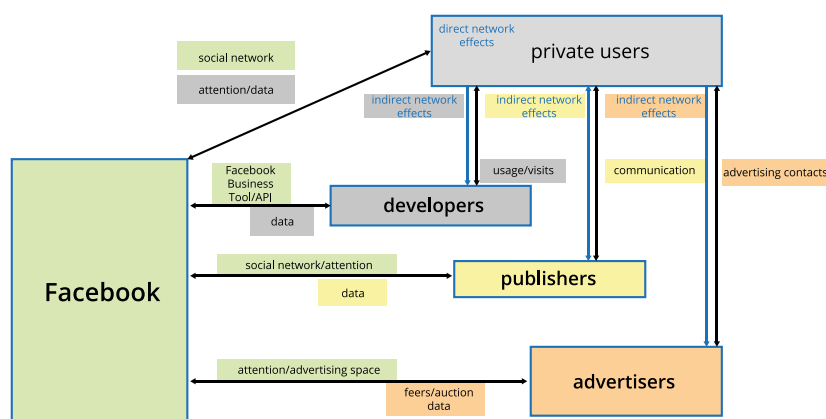
573 <https://googleblog.blogspot.com/2012/01/updating-our-privacy-policies-and-terms.html>.

574 <https://www.facebook.com/about/privacy/update>.

Facebook receives information from third-party websites and services, namely which websites and apps a Facebook user uses and registers with. As a result, Facebook is able to assign a broad set of data to the individual user accounts.⁵⁷⁵

3.6.3. Conclusions: Linking of P2C and P2B governance as characteristic of multi-sided markets

Distinguishing between P2B and P2C governance for analytical reasons may not conceal the fact that the conflation between both layers is central for the business model of many digital platforms. The business model of Facebook, for instance, hinges upon the connection of key user groups such as private users, advertisers, publishers, and developers through Facebook in order to realize indirect network effects.



Source: Bundeskartellamt (B6-22/16)⁵⁷⁶

While nuances of course exist, none of the examined platforms displays significantly different characteristics in its governance structure. More generally, it seems that competition between platforms and their respective competitors does **not produce high variation with regard to T&Cs**. Newly entering platforms seldomly highlight deviations from standard P2B T&Cs to sharpen their business profile (unlike with regard to P2C privacy rules, where high privacy is used as a signifier).

In terms of the geographical **localization of the value capture**, the more the service towards end users is digital (eg Amazon Web Services), the more globally a platform will offer its services. Inversely, a close connection to culturally loaded services or regulated service sectors (eg transportation) entails local competitors. This holds true specifically for China, where Google, Amazon, Airbnb and Tinder face local competition. Also, the availability of global platform services in contested territories, such as the West Bank, regularly creates controversy.⁵⁷⁷

⁵⁷⁵ For a detailed factual description cf Bundeskartellamt, Decision of 6 February 2019, B6-22/16, paras 68-150.

⁵⁷⁶ Bundeskartellamt Decision of 6 February 2019, B6-22/16, https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B6-22-16.pdf?__blob=publicationFile&v=4.

⁵⁷⁷ For the – now reversed – decision of Airbnb to remove listings from Jewish settler homes in the Westbank cf <https://www.theguardian.com/technology/2019/apr/10/airbnb-reverses-decision-to-remove-israeli-west-bank-homes-from->

Across all case-studies, both smaller and more **strategic mergers** have been an important driver of growth and technological advancement.⁵⁷⁸ As illustrated in the case of *Airbnb*, merger activities in an early phase of a pioneering corporate development sought to clear market from competitors with a similar business model to ensure competitive advantage while at a later stage, mergers ensure technological progress and expansion to other business sectors in view of building an ecosystem.

Finally, some variations with regard to the **transition from platforms to ecosystems** can be observed. While some of the case studies reveal paradigm cases of ecosystems (such as Google, Amazon, Airbnb), the dating app Tinder has been on a rather singular track and has not created its own ecosystem. The dating platform is part of a holding (*Match Group*) and must comply with a corporate strategy that may potentially harm its interests. Also, as *Tinder* offers its service directly to its consumers, it relies on a P2C type of relations that leaves little room for relations with other businesses and third parties. In its P2C relations, contractual governance of the above mentioned type (limitation of liability and broad discretion to use user data) can be found.

website.

578 <https://www.economist.com/graphic-detail/2019/07/16/calls-to-rein-in-the-tech-titans-are-getting-louder>.

Chapter 4: General Conceptual Framework

Ioannis Lianos^{579*}

4.1. A complex economy perspective for digital competition law

4.1.1. Competition law in liminal times: beyond neoclassical price theory

As the global economy is incurring a process of transformation by the ongoing ‘fourth industrial revolution’, competition law is traversing a ‘liminal’ moment, a period of transition during which the normal limits to thought, self-understanding and behaviour are relaxed, opening the way to novelty and imagination, construction and destruction.⁵⁸⁰ The development of digital capitalism the last three decades has led to an important ‘information overload’⁵⁸¹, induced by this rapid revolutionary change. Competition authorities in Europe and elsewhere have been rather slow to react, as they have tried unsuccessfully to deal with the problem by applying industrial capitalism era competition law to the ‘next generation competition’ of the post-industrial informational capitalism.

Most competition authorities and competition law scholars have addressed this process of transformation by focusing on its technological dimension and its impact on business models. Their work usefully explores the ways the existing competition law framework may apply to these new business models, or to these new technologies, in order to address the technological challenges of the moment. Others have attempted to theorize the impact technology may have on the concept of competition in order to show that the current framework might be myopic⁵⁸². This effort has identified the problem but has not delved that deeply into suggesting a new theoretical framework for competition economics and competition law, and has stopped short in offering new operational concepts that could be integrated in positive law.

All these initiatives to a certain extent strive to address the question of the scope, role and function of competition law in the post-industrial capitalism era. However, they have not so far integrated this question in the broader debate over the new processes

579 * Andrew McLean contributed to Section 4.3.1.2., and also read through the whole text providing useful comments and suggestions. The author would like to thank Igor Kharitonov for excellent research and editorial assistance as well as for contributing to the drafting of some parts of this research as indicated in a footnote further below.

580 A van Gennep, *The Rites of Passage* (Psychology Press 1960).

581 A. Toffler, *Future Shock* (Random House, 1970).

582 See, L.M. Khan, *Amazon’s Antitrust Paradox*, (2017) 126(3) *The Yale Law Journal* 564; A. Ezrachi & M. Stucke, *Virtual Competition* (HUP, 2016).

of value generation and capture in the era of digital capitalism and the complex economy to which it has given rise to. This complex digital economy is formed by a spider web of economic links, but also their underpinning societal relations, between different agents. As we will explore in the following Section, in order to understand this emergent non-deterministic behavior of such complex system, one needs to refer to concepts such as increasing returns, leverage points, tipping points and path dependence⁵⁸³.

However, competition law still lives in the simple world of neo-classical price theory (NPT) economics, which may not provide adequate tools in order to fully comprehend the various dimensions of the competition game and to guide public policy and competition law enforcement in the digital age and the complex interactions between economic actors that these new technologies enable. The emphasis put recently by competition authorities on multi-sided markets in order to analyse restrictions of competition in the data economy illustrates the agents' changing roles and the complexity of their interactions, as the same agents can be at the same time consumers and producers while their personal data raw material for the value generation process.

It becomes therefore essential to uncover the new value capture and value generation processes in operation in the digital economy, and draw lessons for the optimal design and enforcement of competition law, rather than take the established competition law framework as a given and try to stretch within it a quite complex reality that may not fit this Procrustean iron bed. The stalemate of fitting multi-sided markets theory in the context of a kind of loose operation of market definition as a transaction platform or of determining the existence of a restriction of competition by effect but facing the difficult consideration of out-of-market efficiencies, provide an illustration of the inherent difficulties, and ultimately of the futility, of such exercise. We consider that competition law should first focus on the way the value brought by innovation in the digital economy is captured, shared and generated, the three processes being intrinsically linked, before exploring how this process affects the competitive strategies of firms and the broader selection environment in the economy. Once this effort is completed, it would be possible to re-target and re-conceptualise the competition law tool. We identify three important manifestations of this increasing complexity that may have significant implications for competition law in the years to come.

The first relates to futurity, a term originally coined by John R. Commons to describe the reorientation of economies towards the future. This is linked to the fledgling practice of treating businesses as 'going concerns', measuring their value in terms of their anticipated future profits.⁵⁸⁴ In today's financialised digital economy the most important driver of value creation is pots of gold being found far into the future and eventually linked to future expected monopolistic rents of the digital economy players.

The futurity trend is particular salient in the funding of blockchain technology projects with Initial Coin Offerings (ICOs) emerging as the main source of funding for blockchain startups, even before any promise in their 'white paper' has materialized in real product

583 See our analysis in Section 3.1.2.

584 John R Commons, *Institutional Economics: Its Place in Political Economy* (The University of Wisconsin Press 1934).

markets. Digital platforms are also ‘madly’ valued by financial markets, in a way that does not seem to correspond to their current cash flow, but which increasingly relates to high expectations for phenomenal profits in the not-so-immediate future, because of their position as gatekeepers controlling important bottlenecks in the digital economy (e.g. operating systems, search engines, app stores, the cloud)⁵⁸⁵. The relatively recent focus of competition law on innovation, rather than allocative efficiency, also provides an additional example of the impact of futurity, this time in competition law doctrine. Futurity and its linkage to financialization challenges the traditional approach of competition law, which focuses on market power perceived as the ability to raise prices and reduce output in a well-delineated and existing product market.

Second, the harvesting and processing of personal data enables the personalisation of both production and distribution. It is increasingly acknowledged that data collection is key in the ability of firms to compete in the future Internet of Things (IoT), or Internet of Services (IoS). Firms harvest personal data by attracting users and monetise this data in advertising ‘attention markets’. Although consumers often do not pay for the zero-priced products provided by the platforms, other than providing their data, their autonomy to self-determine the level of privacy they enjoy is curtailed by the ‘take it or leave it’ nature of their exchanges with digital platforms, on which they are dependent in order to operate (work, develop social interactions, be entertained) in their daily life. Consumers cannot easily and costlessly escape from this technological dependence by switching to alternative options, in view of the high switching costs, to the extent that they may not be able to port all their data and digital relations to the competing platforms, and the lack of competition resulting from the ‘winner takes most’ nature of most of these markets.

Data analytics connected to the use of software for predictive modelling, will also reinforce the competitive advantages for the digital platforms holding most of the data, or the attention of users, this being ultimately crystallised in ‘architectural advantage’. This entrenches their monopoly and/or monopsony position in the value chain⁵⁸⁶. Much of this data will relate to the digital identity of the consumer and will enable companies to draw fairly accurate preference maps for each of their clients. In this era of ‘mass personalisation’⁵⁸⁷ the focus will not only be on ‘attention markets’⁵⁸⁸, but on the development of bespoke products to the individual preferences of the consumers. Once a specific amount of data is harvested, these personalised markets may tip to monopoly, if only one platform or ecosystem has the capabilities to harvest and analyse the data as well as to perfectly satisfy the individual consumer’s demand function in an array of

585 See, <https://www.economist.com/business/2017/02/23/are-technology-firms-madly-overvalued>.

586 M. Jacobides, S. Winter & S. Kassberger, “The Dynamics of Wealth, Profit, and Sustainable Advantage”, (2012) 33 Strategic Management Journal, 1386

587 Deloitte, ‘Made to Order: The Rise of mass personalisation’ (2015), available at <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/consumer-business/deloitte-uk-consumer-review-mass-personalisation.pdf>.

588 On this concept, see T. Wu, Blind Spot: The Attention Economy and the Law (March 26, 2017). Antitrust Law Journal, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=2941094>; D. S Evans, The Economics of Attention Markets (October 31, 2017). Available at SSRN: <https://ssrn.com/abstract=3044858>.

products. Firms may be able to monetize this power in financial markets and to leverage it or convert it in other spheres of social activity (e.g. political power, cultural power). Firms may also use this privileged access to the ‘mind’ and attention of users in order to reinforce their positional advantage in the specific value chain vis-à-vis firms forming part of their value ecosystem or which are dependent on them for reaching these users.

The third important change is the move from markets to cybernetics. In the static model of competition applied by competition authorities, prices provide complex information in a condensed way to producers about consumer preferences, thus enabling conventional markets to work. The new data harvesting and processing techniques are nonetheless important game-changers. First, the use of data improves market matches. As customers keep shopping, digital assistants learn how to make even better recommendations, most of this ‘learning’ taking place completely or largely unassisted by humans, as data is fed into machines that continuously update their algorithms. Algorithmic firms gather comprehensive personal data on their customers, and by doing so they undo the need to rely on decentralized markets to acquire knowledge on the preferences of consumers. Preferences are not materializing through choice but algorithmically predicted. Second, they may also more easily discriminate between groups of consumers/users, by choosing a price structure that would subsidize some and ‘tax’ with higher prices others or by offering a personalized price. Price loses its central position as an indicator of consumer preferences expressed in decentralized markets. Consumers are not in the driving seat, as buyers are influenced both by explicit recommendations and by the ways in which options are filtered and presented, in particular as their ‘trust in the machine’ may be higher than trust in humans. Digital platforms may thus replace markets to a certain extent, in particular in a “winner takes most” world, where in the presence of strong network effects digital markets may easily ‘tip’. Platforms are not just ‘matching’ different groups of users but become prediction machines with the ability to manipulate or influence users’ choice. The way these digital platforms finish by regulating their ecosystems, but also manage consumer demand, presents some similarities to a private version of a centrally-planned mini-economy and the field of cybernetics.

4.1.2. What are the distinctive characteristics of a complex economy perspective?

As discussed in the previous Section, ‘simple economics’ rely on partial equilibrium thinking grounded on few propositions (e.g. rational choice), reducing heterogeneity by grouping the various elements that compose the system in few broad categories (e.g. the consumer, the firm, or in other words the ‘representative agent’). It also ignores the ‘connective complexity of the economy’ (the net of links that shape the economy, but also their underpinning societal relations, being kept very simple due to the hypotheses of complete information so that each element of the economy can contact and evaluate all others at no cost, the network of connections being irrelevant to the functioning of

the system)⁵⁸⁹. Unfortunately, using the same tools to understand complex economies and societies fails, because it ignores the variety of adaptive processes at play.

Some definitions of complexity focus on the internal structure of the system, rather than the complexity of the behaviour, qualifying a system as complex ‘when it is composed of many parts that interconnect in intricate ways’⁵⁹⁰. That said, an important concept in complexity theory is ‘emergence’. Contrary to neoclassical economics where the behaviour of the system is assumed to reflect the behaviour of its constituent parts, complex economics accepts that there is a disconnection between an individual’s localised behaviour and how this aggregates into global behaviour⁵⁹¹. As a result of this disconnect, the overall emergent behavior of a complex system is difficult to predict, even when subsystem behavior is readily predictable. Small changes in inputs or parameters may thus produce large non-linear changes in behaviour. Markets may tip once a critical threshold is reached, they are characterized by network effects and various feedback loops, positive or negative. This should not be considered as a criticism to competition law enforcement, in view of the difficulty sometimes to determine with appropriate precision the effects of a specific conduct on the competitive process or the interests protected by competition law.

Complex systems are also dynamic as they learn, evolve, and adapt, generating emergent non-deterministic behaviour, which breaks with the assumptions of equilibrium behaviour of simple economics⁵⁹². They are not populated by homogeneous predictable agents, but by a collection of heterogeneous agents (individuals, organisations etc.), whose state influences and is influenced by the state of others (for instance situations of social contagion), and whose interactions give rise to global properties of the system that are more than the sum of individual behaviour. As the interactions within complex systems are not independent, various feedback loops can enter the system and affect individual decisions. This complex digital economy is characterised by

- increasing returns to scale and scope,
- feedback loops, when interactions between agents are not independent, which may alter fundamentally the dynamics of the system. In systems with negative feedback, changes get quickly absorbed and the system gains soon stability, whereas in a system with positive feedback, ‘changes get amplified leading to instability’⁵⁹³.
- leverage points, that are ‘places where the system can be altered or changed’,
- tipping points, ‘where a system suddenly changes state based on a small change in a parameter of the system’, and

589 M. Fontana, Can Neoclassical Economics Handle Complexity? The Fallacy of the Oil Spot Dynamic, (2010) 76(3) *Journal of Economic Behavior and Organization* 584.

590 J.M. Sussman, *Collected Views on Complexity in Systems*, MIT Engineering Systems Division Working Paper Series, ESD-WP-2003-01.06 (2003), 6 citing the definition of J. Moses, *Complexity and Flexibility* (mimeo).

591 J.E. Miller & S.E. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 50.

592 For an excellent introduction to the significance of complex economics for public policy, see B.A. Furtado, P.A.M. Sakowski, M.H. Tóvolli (eds.), *Modeling Complex Systems for Public Policies* (IPEA, 2015).

593 *Ibid.*, 50.

- path dependence, which means that ‘the current possibilities of the system are in some sense constrained by the past choices that were made’⁵⁹⁴.

The study of complexity also demands different strategies of engagement and new methodologies. As David Colander writes, ‘(i)instead of trying to find a formal analytical model, with a formal solution for these complex phenomena, complexity theory looks for patterns that develop when non-linear processes are repeated for long periods of time’, the mathematics used being ‘non-linear dynamics’, and the models generally used being ‘open models with no unique deterministic solution. Many solutions are possible; which one is arrived at depends upon initial conditions and the path the model follows’⁵⁹⁵. This puts emphasis on computation and brings to the center of the economic enquiry simulation approaches that rely less on theory and more ‘on conjectures and patterns that temporarily fit’⁵⁹⁶. In simple economics, models are constructed for prediction and derive from a set of first principles, which often include assumptions as to the abilities and motives of the underlying agents, these being linked through mathematical reasoning and deduction with axioms, the latter being associated with the notion that ‘social systems tend toward equilibrium states’⁵⁹⁷. In contrast, the computational models are used as mapping tools⁵⁹⁸. They provide the terrain for computational experiments and thus aim to generate only inductive proof. In these models, ‘(a)bstractions maintain a close association with the real-world agents of interest’ and ‘uncovering the implications of these abstractions requires a sequential set of computations involving these abstractions’⁵⁹⁹. These computational models should enable the consideration of the complicated preference structures of the population, and its heterogeneity, so as to account for their more elaborate set of choices.

One of the tools that is often used to generate these computational models is ‘agent-based modelling’, which attempts to depart from the abstraction of the underlying agents in a system into a single representative agent, all agents being subsumed into a single simplified agent⁶⁰⁰. Although agent-based modelling cannot completely dispense of this step, as even if it does not rely on a representative agent, there is some level of abstraction from the real-agents by constructing an artificial adaptive agent, it allows for the direct interaction between these agents (hence the focus on ‘adaptive’). Adaptation can be incorporated through different means, such as employing population-based search evolutionary algorithms (e.g. a genetic algorithm) that draw on a metaheuristic inspired by the process of natural selection and rely on a pool of potential solutions, rather than one⁶⁰¹.

594 See the discussion in W. Rand, *Complex Systems: Concepts, Literature, Possibilities and Limitations*, in B.A. Furtado, P.A.M. Sakowski, M.H. Tóvolli (eds.), *Modeling Complex Systems for Public Policies* (IPEA, 2015), 37, 41.

595 D. Colander, *Complexity and the History of Economic Thought* (March 2008), 4.

596 *Ibid.*, 6.

597 J.E. Miller & S.E. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 59.

598 *Ibid.*, 36.

599 *Ibid.*, 65.

600 *Ibid.*

601 The process involves several steps, beginning with a set of individuals (population), each individual being characterised by a set of parameters (variables or ‘genes’), these being joined into a string to form a solution (‘chromosome’). A fit-

These interactions depend on, and determine the boundaries of, the 'space' within which the agents are contained, the space being often endogenous in a system. The point is that determining the relevant 'space' or 'field' of interaction cannot be done before fully engaging computationally with the interactions of the agents themselves, also taking into account the possibility of asynchronous activation, each agent awaking at a different time, processing what information is currently available and thus by its action altering 'the information ether' that the other agents will face when activated⁶⁰². Such an approach may cater for situations in which, assuming that the focus is on competitive interactions, there is a potential competitor.

In view of its focus on interactions between agents, complex economics models social systems as networks of nodes and ties. These ties act as pipes through which things (e.g. information) flow. This brings to the fore the role of networks as spaces of interaction. This has important implications on the understanding of power relations within systems. For instance, in 'small worlds' networks, where each agent is first connected to a set of neighbouring agents, information can be transmitted between any two nodes using, typically, only a small number of connections (allowing the generation of 'six degrees of separation'), which shows the crucial role in the operation of the system of only a few intermediate nodes⁶⁰³. If however a network is solely composed of neighbourhood connections, 'information must traverse a large number of connections to get from place to place', thus limiting the power/influence of the intermediary nodes⁶⁰⁴. Hence, the position of an agent in a network may be a source of advantage and power.

The type of connections linking the agents is also a crucial issue. The 'strength of weak ties' is a well-known contribution in the field of sociology⁶⁰⁵, showing that weak ties are surprisingly valuable because they are more likely to be the source of novel information than strong ties. This comes out of the hypothesis that if A and B have a strong tie, they are likely to have many acquaintances (weak ties) in common. Strong ties create transitivity which creates a closed world with redundant ties. Bridges are ties connecting different parts of the network: removing the tie between Y and Z would mean the shortest path from Y to Z would be quite long. These are more likely than other ties to be sources of novel, non-redundant information. Weak ties are more likely to be bridges than strong ties. According to another theory, structural holes, which denote a lack of connection between two nodes that is bridged by a broker, provide information benefits and may lead to rewards, thus emphasising the power the broker may draw

ness function measures the ability of an individual to compete with other individuals (how 'fit' an individual is), each individual being given a fitness score. The selection of the fittest individuals to pass their 'genes' to the next generation depends on their fitness score. The next stage is crossover where for each pair of parents to be mated, a crossover point is chosen at random from within the genes. Certain new offsprings formed from the crossover are subjected to a mutation with a low random probability in order to maintain diversity in the population, the algorithm being terminate if the population has converged (does not produce offspring which are significantly different from the previous generation).

602 J.E. Miller & S.E. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 97.

603 *Ibid.*, 155.

604 *Ibid.*

605 M.S. Granovetter, *The Strength of Weak Ties*, (1973) 78(6) *American Journal of Sociology* 1360.

from his positioning within the system⁶⁰⁶. This theory does not focus, as the ‘strength of weak ties’ theory on the strength of the relationship between two entities, but rather on the lack of a tie between entities (the ‘chasm’) that may become source of power for the broker. Complex economics allow for these different sources of wisdom (e.g. economic sociology, network theory, neuro-economics) to be integrated in the way the computational models are constructed, thus augmenting their explanatory power in the context of a complex set of interactions between heterogeneous agents.

Computational models may also allow for a greater heterogeneity of the agents whose interactions will be modelled, for instance by developing ‘an ecology of agent types, each relying on different behavioural governing mechanisms’⁶⁰⁷, although as mentioned above it cannot completely dispense with the constitution of representative agents. This enables the theorist to construct computation models ‘bottom-up’, any abstraction focusing ‘over the lower-level individual entities that make up the system’⁶⁰⁸. The model also integrates learning and adaptation as a byproduct of this direct interaction, thus incorporating frameworks for emergence, the model being flexible enough so that ‘new unanticipated features’ may naturally arise within the model⁶⁰⁹. This contrasts with the ‘top-down’ modelling of simple economics which ‘abstracts broadly over the entire behaviour of the system’⁶¹⁰. The point is that even if we managed to acquire ‘a complete specification of the psychological aspects of behaviour or the probability of interaction’ of all the underlying agents, it would still be difficult to fully understand the macrolevel implications of their interactions, in particular because the models of simple economics do not anticipate emergence⁶¹¹. Emergence does not deny the possibility for an equilibrium state, however it indicates that this equilibrium state may not be unique and may ‘depend on various random elements of the model or nonlinearities’, the system being in ‘perpetual motion’⁶¹².

This computational modelling may aim to unveil a simple structure of interactions, abstracted from the behaviour of artificial adaptive agents, or a more complicated structure of interactions, in case the computational modelling and the use of simulations allows for the constitution of ‘artificial life’ or artificial worlds. These would rely on a model of ‘adapting, communicating, multiple-game playing artificial agents’⁶¹³. One may think of reproducing the digital twin of a network or ecosystem, linking the real and digital worlds, using AI to turn data into actionable insights. First, various sorts of data may be harvested, and then millions of examples of curated data could be leveraged to train deep learning neural networks. At the next step, neural networks may be used to approximate parts of the computational model. This holds the potential for evaluating the

606 R. Burt, *Structural holes: The social structure of competition* (Harvard Univ. Press, 1992).

607 J.E. Miller & S.E. Page, *Complex Adaptive Systems* (Princeton University Press, 2007), 101.

608 *Ibid.*, 66.

609 *Ibid.*, 69.

610 *Ibid.*

611 *Ibid.*, 67.

612 *Ibid.*

613 *Ibid.*

effectiveness of tailored treatments and experiment with various forms of intervention, using advanced simulation in order develop more precise prognoses. These tools may enable a better and quicker filtering of the situations in which more elaborate competition law analysis is needed, and may provide solid evidence for building counterfactuals in competition law investigations.

Some of the theoretical insights and concepts of complex economics have been gradually incorporated in competition economics' scholarship and some in competition law enforcement. Terms, such as increasing returns, tipping point, leveraging point are widely used by scholars, competition authorities and courts and form now part of the current mainstream approach in competition law and economics. However, the tools and methodologies of complex economics have not yet made any impact on competition law enforcement, but also on competition law and economics literature. We consider that it is time competition authorities make the effort to engage with these new tools, and to develop capabilities for engaging with computational economics. In view of the large availability of data, and the complexity of the issues raised by digital platforms and networks, the digital economy offers plenty of opportunities to try these new methodologies and tools, such as agent-based modelling, computational models, digital twins etc. In our view one of the major impediments for the use of such novel approaches is the rigidity of the 'consumer welfare' standard that has enthused so far the Geist of competition authorities and has provided the theoretical framework of their action the last few decades. We consider that the emphasis put on 'consumer welfare' is very much linked to the simple economics of the 'representative agent', and does not account for the heterogeneity of agents and the complexity of their preference structures, in particular as competition law becomes more 'polycentric'⁶¹⁴.

This discussion leads us to explore how the current consumer welfare standard applied by competition authorities may fare in the era of digital competition and a complex economy.

4.2. Is the consumer welfare standard adequate to deal with the competition challenges of digital competition, and how could this consumer welfare standard be defined?

4.2.1. The pitfalls of the consumer welfare standard in a complex digital economy

The concept of consumer welfare is one of the most commonly referred goals of competition law, by competition authorities and also competition law and economics scholarship globally. The concept is in reality quite fuzzy and may include multiple dimensions of 'consumer harm' that may trigger competition law enforcement:

614 I. Lianos, Polycentric Competition Law, (2018) Current Legal Problems 161.

- (i) In the economic jargon, the protection of consumer surplus constitutes an important part of the total welfare standard test. In this context, consumer surplus denotes the consumer part of the deadweight loss suffered as a result of the restriction of competition. For example, a price increase might lead to a volume effect that would be suffered by a certain category of consumers: because of the price increase some consumers will not be able to buy the product any more, although past consumption patterns (revealed preferences) indicate that they would have preferred to do so, if the price had not increased. In this sense, the case against the exploitation of substantial market power is not linked to the transfer of wealth from consumer to producers over those (infra-marginal) units of output still sold, but merely on the lost transactions which could have taken place under a more competitive scenario.⁶¹⁵ In any case, for operational purposes the focus is on consumer harm, as captured by the (likelihood of) higher prices and lower quantity; bearing in mind that in practice hardly anyone in the field of enforcement ever actually attempts to measure/estimate actual changes in either total or consumer welfare.⁶¹⁶ Under this narrow definition of consumer surplus, the overcharge paid by the consumers as a result of the price increase should not be of concern for competition law enforcement, as it constitutes a wealth transfer from the buyers to the sellers. The suppliers may be in a position to compensate (hypothetically, not actually) the loss that consumers have suffered while still being able to compensate with this wealth transfer their own losses following the volume effect (producer surplus). In this configuration the situation will be Kaldor-Hicks efficient. We will call this view of consumer harm: the 'consumer surplus standard'.
- (ii) There is also an argument to move beyond consumer surplus and include in the analysis the wealth transfer that consumers have incurred because of the overcharges following the restriction of competition. These may relate not only to higher prices but could cover any other parameter of competition, such as quality, variety, innovation. In this case, both the loss of consumer surplus and wealth transfers will be compared to the total efficiency gains pertaining to the supplier(s), thus enabling a cost benefit analysis of the effect of the conduct on the welfare of a specific group of market actors, direct and indirect consumers (not all market actors). The idea is that following the change from an equilibrium situation to another, the consumers of the specific product will benefit from a surplus and/or wealth transfer, in the sense that their ability to satisfy their preferences will in

615 The irrelevance of distributional concerns is normally justified with reference to the 'compensation principle' (also labelled Kaldor-Hicks efficiency criterion, or Potential Pareto Improvement) which posits that, if gainers can compensate losers and still be better-off, the change observed in the partial equilibrium analysis is desirable. That is to say, even if the compensation never actually takes place, it is down to the political system to take care of the redistribution of the 'pie' (the separability thesis).

616 There are some examples of competition authorities commissioning studies into the effects of their past decision, thus basically assessing whether their intervention (or lack thereof) has increased consumer surplus. For an overview, see, OECD (2011), *Impact Evaluation of Merger Decisions*, available at <http://www.oecd.org/daf/competition/Impactevaluationofmergerdecisions2011.pdf>.

crease. Again, for clarity this standard will be referred to as the 'consumer welfare standard'.

Usually, looking at changes in total or consumer surplus makes no difference in practice, since both tend to move in the same direction, as graphically captured by the deadweight loss, which is the loss of consumer and producer surplus due to a restriction in output caused by an increase in price, and stands to signify how allocative efficiency has worsened due to the exploitation of market power. As put by Werden '[a]nything enlarging the metaphorical pie offers a potential Pareto improvement because it is possible to make at least one individual better off while no one is worse off⁶¹⁷'. However, there may be situations in which a specific conduct, while leading in theory to a potential increase of the pie, worsens the situation of consumers, who not only capture less than before, but may also see their situation worsen. In these cases, a consumer welfare standard will focus on the wealth transfer from consumers to other market players. Let's imagine that thanks to the exclusion of a less (productively) efficient rival (i.e., as a result of a merger or foreclosure) a larger share of demand is now allocated to a dominant firm with lower costs, so that the supply curve shifts outward to the right. At the same time, though, the exclusion of a less efficient rival will reduce competitive constraints in the market making it possible for the dominant firm to increase prices. The reduction in costs may not be large enough to offset the increase in price.

- (iii) Some authors argue also that competition authorities should aim to preserve an optimal level of 'consumer choice', defined as 'the state of affairs where the consumer has the power to define his or her own wants and the ability to satisfy these wants at competitive prices'⁶¹⁸. This concept seems broader than the concepts of 'consumer surplus' and 'consumer welfare' (the latter including consumer surplus plus the wealth transfer because of the overcharge) as it may include other parameters than price, in particular 'variety'. The same authors have used interchangeably the term of 'consumer sovereignty', which is defined as 'the set of societal arrangements that causes that economy to act primarily in response to the aggregate signals of consumer demand, rather than in response to government directives or the preferences of individual businesses'.⁶¹⁹ Defining the 'optimal degree' of consumer choice or consumer sovereignty and measuring it using some operational parameters seems however a daunting task. Consumer sovereignty may be conceptually appealing but may prove empirically weak to implement in competition law enforcement.

617 G.J., Werden 'Antitrust's Rule of Reason: Only Competition Matters', (Mimeo Washington, DC: U.S. Department of Justice – Antitrust Division, 2003), 28.

618 R.H. Lande, 'Consumer Choice as the Ultimate Goal of Antitrust' (2001) 62(3) University of Pittsburgh Law Review 503, 503. For an import of this concept in EU competition law, see P. Nihoul, N. Charbit & E. Ramundo (eds.), Choice – A New Standard for Competition Law Analysis? (Concurrences, 2016).

619 N.W. Averitt & R.H. Lande, 'Consumer Sovereignty: A Unified Theory of Antitrust and Consumer Protection Law' (1997) 65 Antitrust Law Journal 713, 715 .

- (iv) Consumers, or more generally the public, may also benefit by a vivid competitive process. The idea is that the preservation of a competitive process is essential to prevent a prolonged departure from the optimal outcome usually associated to competition. Another approach may be deontological and would argue that the competitive process and the economic freedom of undertakings to participate to this competitive process must be preserved, irrespective of the effects of such competition on social or consumer welfare. The German ordoliberal school has arguably put emphasis on the competitive process indicating that we should be concerned if ‘the number of freely competing producers is artificially reduced in ways that do not result from the normal process of competition itself’, and ‘where this reduces the scope of alternatives among which consumers may freely chose’.⁶²⁰ Defining the competitive process as ‘the process of sellers and buyers forming improving coalitions’, other authors argue that ‘[competition law] protects the *potential beneficial trades between* competitors and consumers’, recognising ‘both consumers and thwarted competitors’ ‘antitrust rights, even though antitrust protects ‘competition and not competitors’.⁶²¹ Such an approach may dispense, to a certain extent, with focusing on all practices that reduce consumer welfare in equilibrium and may provide a useful starting point for the competition assessment, or for some a substantial part of the competition assessment.
- (v) As innovation is considered a major engine of growth, public authorities play a direct role in fostering innovation⁶²², but also in supporting the emergence of an innovation-friendly market environment. The role of the competitive process in the promotion of innovation is well recognized and widely accepted. Certainly, research and development requires up front investments for uncertain rewards. For instance, intellectual property rights were initially conceived as an exception to the rule of competitive markets. By providing some economic rents, intellectual property rights are supposed to ensure that the inventor has adequate incentives to innovate at the first place. Although IP may provide some certainty over the ability of an undertaking to retain the benefits from the innovation it put in place (and internalise the positive externalities thus produced), the social return to innova

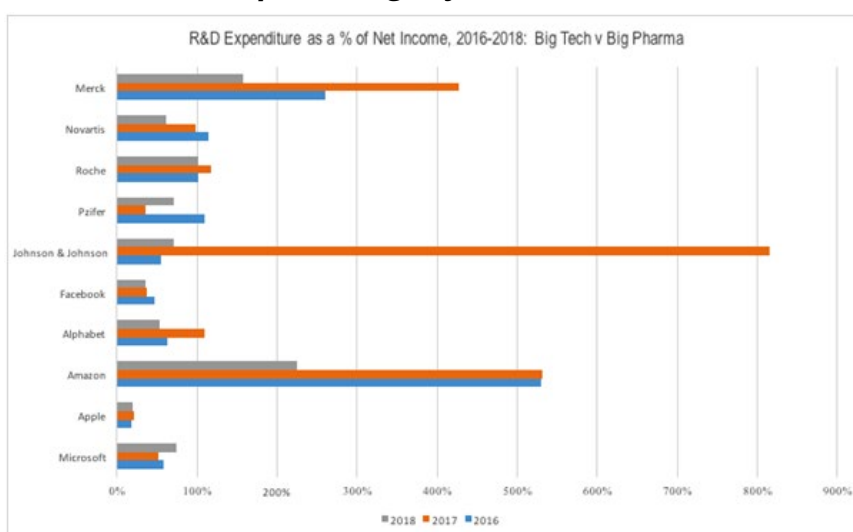
620 P. Behrens, ‘The Ordoliberal Concept of ‘Abuse’ of a Dominant Position and its Impact on Article 102 TFEU (September 9, 2015) Nihoul/Takahashi, Abuse Regulation in Competition Law, Proceedings of the 10th ASCOLA Conference Tokyo 2015, available at SSRN: <https://ssrn.com/abstract=2658045> . For a translation in English of the views of one of the principal authors of the ordoliberal group, see W Eucken, The Foundations of Economics – History and Theory in the Analysis of Economic Reality (1992, first published in 1939, Springer).

621 See A. Edlin & J. Farrell, Freedom to Trade and the Competitive Process, in R Blair & DD Sokol (eds.), The Oxford Handbook of International Antitrust Economics, Vol. I (OUP, 2014), Chap. 13.

622 This is either done through public investment in science and basic research, which can play an important role in developing general-purpose technologies and, hence, in enabling further innovation, as well as public support to innovative activity in the private sector, which is usually taking the form of a mix of direct and indirect instruments such as tax credits, soft loans, direct support etc. On the important role of the State in supporting innovation, see M. Mazucatto, The Entrepreneurial State: debunking public vs. private sector myths (Anthem 2013).

tion largely exceeds its private return.⁶²³ In reality, imperfect IP protection may lead the competitors to gain some of the rewards from the rival's innovation (the problem of limited appropriability).⁶²⁴ Technological spillovers and imitation across the industry or cross-industries may boost growth to a considerable extent, without being possible that these indirect benefits are appropriated by the IP holder, thus illustrating the inadequacy of a policy relying on intellectual property rights only to spur innovation and the importance of public funding of research. It has been argued that disruptive innovation may also challenge monopoly positions that become temporary (the process of 'creative destruction').⁶²⁵ Determining what is the appropriate market structure for innovation remains however an open and hotly debated issue.⁶²⁶ The rise of digital platforms may have both positive and negative effects on innovation. In theory, digital platforms have been investing considerably in R&D, although their R&D intensity is lower than that observed in the pharmaceutical industry, even if the amount of R&D expense, because of their capitalisation may seem quite high. Figure 4.1. below, illustrates comparative R&D expenditure as a percentage of net income between the five largest tech and pharmaceutical companies by market capitalisation.

Figure 4.1.: Big Tech vs. Big Pharma – R&D expenditure as a percentage of net income, 2016-18



623 This was highlighted by K. Arrow, *Economic Welfare and the Allocation of Resources for Invention in The Rate and Direction of Inventive Activity: Economic and Social Factors* (NBER, 1962) 609.

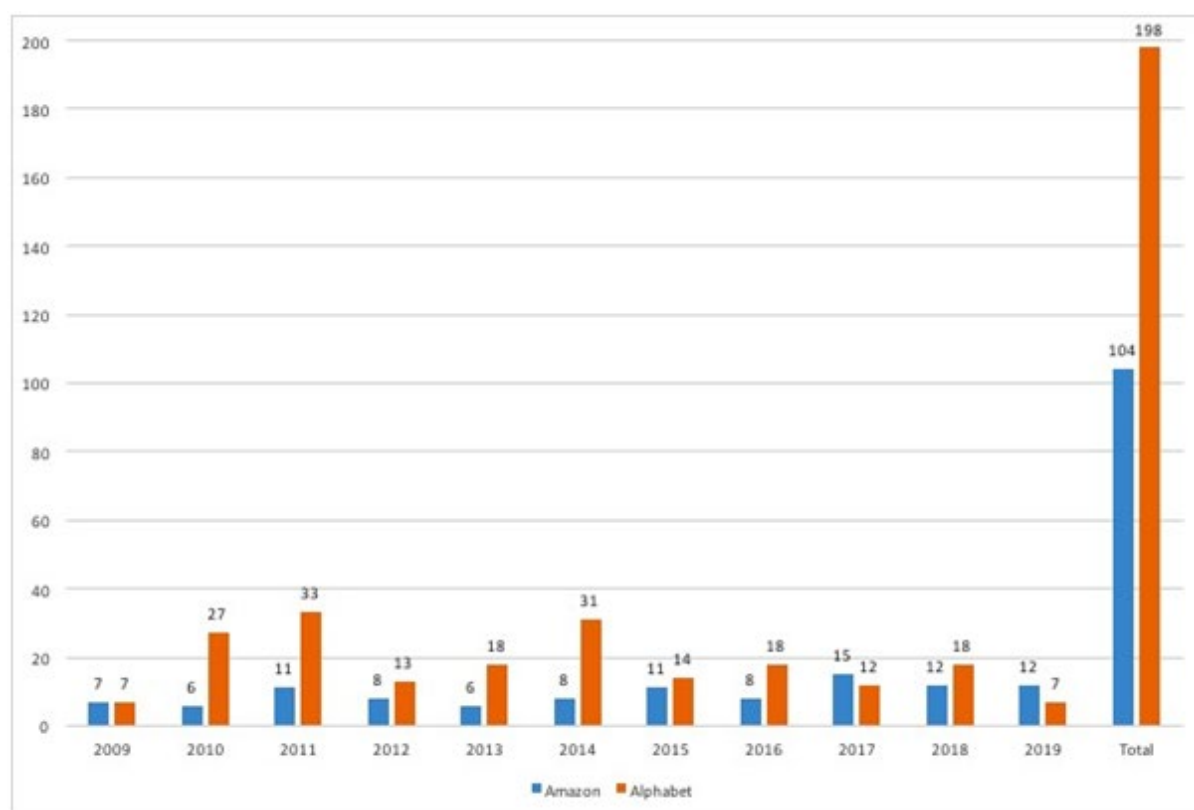
624 Ibid., 619.

625 J. Schumpeter, *Capitalism, Socialism and Democracy* (1942, published by Harper & Bros. in 1950) 83, noting that 'The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U. S. Steel illustrate the same process of industrial mutation – if I may use that biological term – that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in'.

626 For a critical analysis, see the companion volume. See also, J Baker, 'Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation' [2007] 74 *Antitrust Law Journal* 575; RJ Gilbert, 'Competition and Innovation' in WD Collins (ed) [2008] 1 *ABA Section of Antitrust Law, Issues in Competition Law and Policy* 573.

However, we also observe that the Big Tech platforms have engaged in intensive M&A activity, buying not only a number of potential competitors (contributing to the problem of ‘killer acquisitions’), but also vertical and conglomerate mergers, quite often in order to control technologies that could complement well their core activities. Figure 4.2. illustrates the scale of acquisition activity by Amazon and Alphabet over the last decade, and highlights the largest of these transactions by deal value.⁶²⁷ Amazon and Alphabet were involved in 102 and 195 transactions, respectively, over the period.⁶²⁸

Figure 4.2.: No. of M&A deals completed by Amazon and Alphabet, 2009-19



Source: Author's compilation

Although Big Tech retain earnings and do not distribute, at least as much, to their shareholders, they do not seem to significantly reinvest these retained earnings in R&D as most of them sit on large amounts of unutilised cash.⁶²⁹ This is not a unique story for Big Tech. Investments in R&D are increasingly concentrated in a few sectors across most

⁶²⁷ ‘Investments’ should be taken to mean partial investments in a company. Large coloured circles indicate the deal value exceeded \$1 billion, small coloured circles indicate the deal value to be less than \$250 million, and clear circles denote that the deal value is unknown. The original graph produced by The Economist also contains the acquisition and investment activity of Microsoft, Facebook and Apple. Microsoft, Facebook and Apple were involved in 117, 68 and 71 transactions, respectively. The Economist, Calls to rein in the tech titans are getting louder (16 July 2016) <<https://www.economist.com/graphic-detail/2019/07/16/calls-to-rein-in-the-tech-titans-are-getting-louder>> accessed 14 August 2019.

⁶²⁸ *ibid.*

⁶²⁹ See R. Waters, ‘Google parent Alphabet overtakes Apple to become new king of cash’ (31 July 2019) <<https://www.ft.com/content/332dd974-b349-11e9-8cb2-799a3a8cf37b>> accessed 14 August 2019.

of the mature economies⁶³⁰. Firms may also employ cash hoarding as a defensive tool in order to protect their current stock of technology, and not in order to invest in new technologies. Statistics show that business investment has steadily declined since the late 1970s, if measured as a share of GDP⁶³¹. The concept of research has also changed. A lot of money is actually spent on product adaptation, design and development, copying a feature or add on from another product or adjusting the product stock to local demands – i.e. the development – and little is spent on the research⁶³². Growth in real investment on R&D is declining, the US National Science Foundation reporting that its measure of R&D intensity has flat-lined since 1995⁶³³. Many companies have reacted to problems with their R&D strategy by outsourcing R&D to smaller firms that can take bigger risks⁶³⁴. Similar processes are in operation in the digital sector where a significant amount of R&D depends on start-ups, many of which will not develop to unicorns. Once the R&D investments have begun to mature into innovative products, large companies have acquired them and integrated them into their global value chains⁶³⁵. This may affect the innovation and entrepreneurial ethos and consequently lead to the loss of opportunities to innovate in comparison to a more competitive industry structure. In the absence of some assurance that large firms will invest their profits to promote innovation and increase the production possibility frontier, it would be imprudent to provide a *carte blanche*.

Box 4.1. Goals and objectives of BRICS competition laws and the digital economy

On the adequacy of the relevant national competition laws to face the challenges arising from the digital economy, especially whether the goals and the objectives are sufficient to address challenges arising from the digital economy, most BRICS economies find the matter requiring further analysis or redesign of existing tools:

BR The competition law establishes the prevention and the restraint of violations against the economic order as the main goal of the Brazilian Competition Defense System. This goal addresses conducts involving the digital economy as well. So no revision of goals is required. Further the current competition law is very flexible to address the specific issues related to digital markets. It has been applied successfully in several competition cases involving these markets in the recent years.

630 See for example G. Clark, 'Winter Is Coming: Robert Gordon and the Future of Economic Growth', (2016) 106(5) American Economic Review: Papers & Proceedings 68-71.

631 Ibid, p. 29.

632 F. Erixon and B. Weigel, *The Innovation Illusion* (Yale University Press, 2016), 33.

633 R&D intensity, measured as the share of industry-level R&D expenditure to sales, increased in the seed sector from 11.0% in 1994 to 15.0% in 2000 before falling back to 10.5% in 2009.

634 See for instance, P. Gleadle et al., 'Restructuring and innovation in pharmaceuticals and biotech: The impact of financialisation', (2014) 25 Critical Perspectives on Accounting 67-77

635 Comanor and Scherer point out to how M&A may have been used as a safety net for companies against the uncertain prospects of innovation projects or to acquire synergies in R&D, W. S. Comanor and F. M. Scherer, 'Mergers and innovation in the pharmaceutical industry', (2013) 32 Journal of Health Economics 106-113. Similar analyses can also be found in P. Gleadle et al., 'Restructuring and innovation in pharmaceuticals and biotech: The impact of financialisation', (2014) 25 Critical Perspectives on Accounting 67-77.

Nonetheless, CADE is concerned about the challenges to competition law and enforcement posed by new technologies and is developing studies to identify potential limitations of the current legal framework as well as of the analytical and enforcement tools.

RU The FAS Russia does not see necessity to change the objective of competition regulation. However, enforcement practice in relation to digital companies showed that there is a need to amend the current antimonopoly legislation in order to be able to reply to the challenges of the digital world. The FAS Russia prepared the fifth anti-monopoly package, which contains significant number of provisions devoted to digital economy. It concerns introduction of the new definitions, adding criteria of dominant position of the platforms, adding consideration of data ownership when analysing the market, empowering the FAS Russia with the function to impose a remedy in the form of providing non-discriminatory access to data and establishing Trustee for monitoring compliance of the economic entity with the Ruling.

CN The basic framework and principles of the existing Anti-Monopoly Law are sufficient to deal with the competition caused by the digital economy. The Anti-Monopoly Law protects fair competition in the market, which means that all operators are equal before the law. The Internet sector is also regulated under the Anti-Monopoly Law. Any operator that violates the Anti-Monopoly Law must accept the investigation of the national competition authorities and assume corresponding legal liabilities. The State Administration for Market Regulation, responsible for the unified anti-monopoly law enforcement in China, attaches great importance to the competition in the new economic field. The State Administration supervises the development of emerging fields such as the Internet according to the principle of inclusiveness, protects fair competition in the market, and provides an inclusive development atmosphere for new Internet formats and new operation models. It is necessary to fully utilise market mechanism, enhancing the role of innovation in driving the Internet industry; it is also necessary to improve the Internet industry's regulatory system, working synergistically with relevant departments, strengthening market surveillance in accordance with the law, effectively regulating the competition of platforms, investigating the alleged anti-competitive conduct, preventing the formation of industry monopolies and market barriers, protecting the legitimate rights and interests of consumers and the public interests, and guiding the healthy and orderly development of the Internet industry.

ZA The current competition Law is adequate. However, the challenges mentioned above indicate that a process of reviewing the border regulatory regime is required if South Africa is to catch up with the shifts to the digital age. Challenges faced by South Africa include concerns raised across several sectors about the fact that the broader regulatory framework in many cases does not apply to new, disruptive technology, which gives these firms an unfair competitive advantage over regulated incumbents. For instance, traditional metered taxis have raised the concern that area restrictions and price regulation applied to their business model is not applied to e-hailing firms,

placing the traditional model at a competitive disadvantage. Public and FTA broadcaster licensees subject to local content requirements express concerns that streaming services are not licensed and therefore not subject to the same regulations, and that their advertising revenue base is being rapidly eroded by Facebook and Google.

What appears to be lacking is the understanding of the tools used by digital actors in competing with one another, in setting prices, in excluding other players from the market by way of foreclosure. From the cases investigated thus far, it appears that the Commission is left behind in terms of understanding the competition dynamics in the digital markets. Thus, it appears that what needs to change or improve is mainly the tools for identifying competition issues as the traditional methods do not seem to be working well in digital markets.

Source: BRICS NCAs Questionnaire

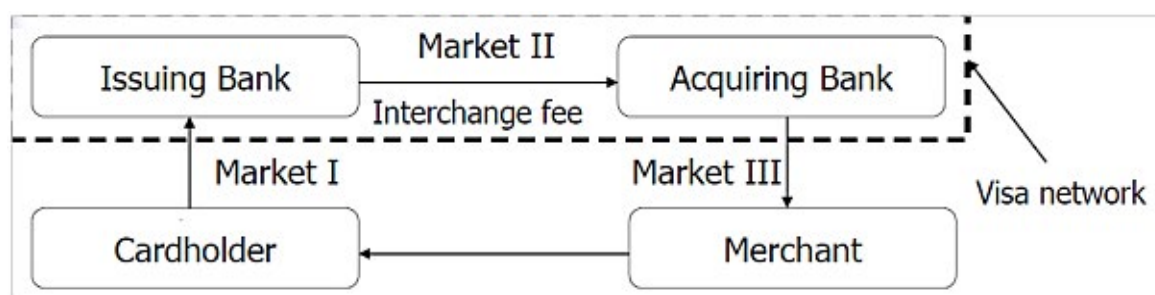
Whichever option (or options) from the above is chosen, there are adjustments that need to be made in order to take into account the specificities of the digital economy. Some of them may directly concern all options, such as for instance network effects and tipping or leverage points that may change the way we think about the need to preserve the competitive process (option iv) or promote innovation (option v). Personalisation and cybernetics may have effects as to the conceptualisation of consumer choice (option iii). However, in view of the importance given to price competition in contemporary competition law and economics analysis, it would be good to focus the specific welfare standard under dimensions (i) and (ii). Two related changes brought by digital competition are of particular relevance here. First, it is quite frequent that products may be distributed for 'free' at one side of the platform, this meaning that consumers are not charged positive prices, the products being sold at zero-prices, or even it is possible that consumers receive a reward (they are charged a positive price). Hence, it is more complex to assess the consumer welfare effect or consumer surplus effect in these markets, without also taking into consideration other parameters of competition (such as quality and variety). Second, the multisided nature of platforms renders this static and focused analysis of effects on a specific relevant market rather inconclusive. Anabelle Gawer notes the 'changing roles' of agents in these multi-sided platforms, as it is possible that '(w)hile end-users "consume" the service (search, social networking) offered by these platforms, they also constantly "feed", individually and collectively, their personal data into these platforms (as expressed by the items they search, their location, their preferences as revealed by previous queries, and their personal connections data), thereby providing the very data upon which these platforms draw upon to deliver their services' (akin to input suppliers)⁶³⁶. As it is imaginatively explained by Kate Crawford and Vladan Joler, '[...] the user is simultaneously a consumer, a resource, a worker and a product'⁶³⁷.

636 A. Gawer, Bridging differing perspectives on technological platforms: Toward an integrative framework, (2014) 43 Research Policy 1239, 1243.

637 Kate Crawford and Vladan Joler, Anatomy of an AI system: The Amazon Echo As An Anatomical Map of Human Labor, Data and Planetary Resources, AI Now Institute and Share Lab, (September 7, 2018), available at <https://anatomyof.ai/>.

There is no need to focus on an advertised-based platform in order to gauge the complexity of implementing the consumer welfare standard in the digital era of multi-sided platforms. We will use the example of a 'transaction platform, that of four-parties payment system, such as Visa or Mastercard (Figure 4.3.).

Figure 4.3.: A four-parties payment system platform



Source: Author's compilation

As it appears from Figure 4.3., there are three markets, one between networks and merchants (Market III), the other one between networks and cardholders (Market I). One may also identify market II, as acquiring and issuing banks set an interchange fee for each transaction, but we do not focus on this market right now as it is managed by the platform (Visa, Mastercard) and creates competition law problems of its own. The payment system faces competition from rival network (for instance Visa competes with MasterCard, Amex, Union Pay. Assume that each network charges a fee to a merchant in market III if a transaction is routed through that network. Each network also pays a 'reward' to cardholders to induce them to use that network and increase demand (sales) in market I. Rewards to cardholders are not sold in market III but have the effect to shift upwards demand in market I. In a competitive environment, merchants are allowed to 'steer' consumers to cheaper payment networks by providing monetary and non-monetary incentives. However, if a digital platform restricts price competition in market III by not allowing merchants to 'steer' consumers to other payment systems or to disclose the transactions' costs to cardholders and provide incentives (including monetary incentives) to cardholders to use cheaper payment cards, this may constitute *prima facie* a restriction of competition. The anti-steering rule may result in higher fees to merchants than otherwise, and clearly harms the merchants.⁶³⁸ The restriction of competition likely results in an increase in retail prices paid by all consumers, including those paying cash. The application of the consumer welfare standard requires a complex design which would enable competition authorities to take into account all the possible consumer harms, but also possible benefits to consumers. But these are many: one may refer to the harm to the merchants, consumers of market III, or to the harm of cash-paying merchants' customers, who may be considered as indirect consumers downstream market III, on which the merchants may pass the higher fees. There is however consumer ben-

638 For a detailed discussion, see F. Ducci, Out-of-Market Efficiencies, Two-Sided Platforms and Consumer Welfare: A Legal and Economic Analysis, (2016) 12(3) Journal of Competition Law and Economics 591.

efit in market I, as because of the anti-steering rules, and the possibility to increase its fees, the payment system may afford to reward cardholders with positive prices, for instance travel or shopping rewards etc. A competition analysis focusing on consumer welfare will need to decide (i) which market will serve as the main unit of analysis of consumer welfare, or (iii) to balance costs and benefits for the consumers affected in all markets. This may prove a rather difficult and resource consuming task, that would also require the possibility for out of relevant market efficiencies to outweigh consumer harm in another market.

4.2.2. Should competition law take into account the broader social cost of restriction of competition in the digital economy, and can this be done?

One may envisage the possibility that competition law may intervene in situations in which the power held by digital platforms or other digital gatekeepers and the restriction of competition in the digital economy, which result from the exercise of this power, produces broader social costs than just a cost to consumer welfare. These broader aims for competition law intervention may be considered as economic or political, to the extent that one defines economic as narrowly concerned with consumer surplus and economic efficiency. One needs however to also take into account the broader political objective to keep the Internet free from all, state or corporate, gatekeepers, which is an intrinsic characteristic of the Internet architecture that emerged from the international consensus in the early 1990s. This broad international consensus on a decentralised trans-national architecture of the Internet, most norms and principles governing protocols and standards in this network of networks deriving largely from a bottom up process⁶³⁹, may be jeopardised by the regulatory role of a handful of digital platforms. These concerns provide the philosophical background that justify the consideration of the broader social costs of the restrictions of digital competition than those encompassed by the narrow aim of consumer welfare.

Box 4.2. Social costs of the digital transformation

BR The digital transformation is a very dynamic process with positive and negative impacts in terms of social costs. Regulatory and legislation authorities have to monitor closely these impacts, updating legal and regulatory framework when necessary, in order to minimize negative impacts.

RU Today all the public authorities are engaged (within the scope of activity of every of them) to development of digital environment and creation of regulatory framework adequate for the ongoing transformations.

Source: BRICS NCAs Questionnaire

⁶³⁹ Such as the end-to-end design principle, according to which application-specific features reside in the communicating end nodes of the network, and not in intermediary nodes, such as the router, which establish the network, or the separation of the upper and lower layers with the TCP/IP protocol serving as a portability layer.

4.2.2.1. Income and wealth distribution

There are certainly many causes that could explain the recent rise in poverty and inequality: the globalization of production, the erosion of collective bargaining systems, the continued drop in real wage values, tax evasion or unfair tax systems. However, it is increasingly accepted that market power may be a significant source of both inefficiency *and* inequality. Joseph Stiglitz notes that “today’s markets are characterised by the persistence of high monopoly profits”⁶⁴⁰. He also argues that “policies aimed at reducing market power can accordingly play some role in the reduction of inequality”, although he remains careful of setting this as an explicit aim of competition law⁶⁴¹. Other economists have been equally vocal on the need for a robust competition law and policy against inequality⁶⁴². Is increasing economic concentration leading to higher degrees of inequality of wealth? This may be a difficult question to answer in view of the overall tendency of wealth concentration that has been observed during the twentieth century and at least part of the nineteenth century⁶⁴³, and according to more recent studies, apparently since the fourteenth century⁶⁴⁴, although one should note that there are various measurement and data related difficulties for such research endeavours.

The effects of concentration on the unequal distribution of wealth may, however, be linked as in the “Age of secular stagnation”⁶⁴⁵ and intense financialisation, return to capital exceeds economic growth, the result being that rentiers or senior executives, which form the bulk of the richest 1% of the population, see their share of total wealth increase. One may also rely on empirical evidence linking higher concentration following mergers to higher prices⁶⁴⁶, and evidence showing that in the ‘winner-take-most’ competition of digital markets, where ‘superstar firms’ command growing market shares and

640 J. Stiglitz Monopoly’s New Era, (2016) available at www.project-syndicate.org/commentary/high-monopoly-profits-persist-in-markets-by-joseph-e--stiglitz-2016-05 .

641 J. Stiglitz, Towards a Broader View of Competition Policy, in T. Bonakele, E. Fox & L. McNube (eds.), Competition Policy for the New Era – Insights from the BRICS Countries (OUP, 2017), 4, 15; J. Stiglitz, N. Abernathy, A. Hersh, S. Holmberg, and M. Konczal, Rewriting the rules of the American economy: an agenda for growth and shared prosperity, New York: W.W. Norton (The Roosevelt Institute, May 2015, <http://www.rewritetherules.org>.)

642 T. Atkinson, Inequality: What can be done? (Harvard University Press, 2015).

643 See, for instance, F. Alvaredo, A B Atkinson, T Piketty & E Saez, The Top 1 Percent in International and Historical Perspective, (2013) 27(3) Journal of Economic Perspectives 3-20; A. Atkinson, T Piketty & E Saez, Top incomes in the long run of history, (2011) 49(1) Journal of Economic Literature 3; T. Piketty, G. Postel-Vinay. & J.-L. Rosenthal, Wealth Concentration in a Developing Economy: Paris and France, 1807-1994, (2006) 96(1) American Economic Review 236; J. Roine, & D. Waldenström, Long Run Trends in the Distribution of Income and Wealth, in A. Atkinson & F. Bourguignon (eds.), Handbook of Income Distribution, (vol 2A, North-Holland, 2015), 469.

644 G. Alfani, Economic Inequality in Northwestern Italy: a Long-Term View (Fourteenth to Eighteenth centuries), (2015) 75(4) Journal of Economic History 1058; G. Alfani, The rich in historical perspective. Evidence for preindustrial Europe (ca. 1300-1800), (2017) 11(3) Cliometrica 321.

645 L. Summers, The Age of Secular Stagnation: What It Is and What to Do About It, Foreign Affairs (noting the imbalance between excessive savings and investment, pulling down interest rates, savings tending to flow into existing assets, causing asset price inflation and possible

646 See, J. Kwoka, Mergers, Merger Control, and Remedies (MIT press, 2014); J. Kwoka, Does Merger Control Work? A Retrospective on U.S. Enforcement Actions and Merger Outcomes, (2013) 78(3) Antitrust Law Journal 619.

become highly profitable, one may observe a larger decline in labour's share⁶⁴⁷, which has obviously an impact on economic inequality.

Box 4.3. how should BRICS NCAs address digital platforms where 'winner takes most'?

BR In many cases, the "winner takes most" situation is the equilibrium of some digital markets. In such cases, attempting to superimpose a different market structure (say, one in which all firms have approximately equal market shares) may be counterproductive and inefficient. On the other side, it is necessary to prevent the misuse of market power. Therefore, finding the right balance is essential for promoting innovation and protecting consumer welfare in the fast-moving environment presented in digital markets.

RU The experience of the FAS Russia shows that the significant market power of the digital platform could be addressed with the remedies of providing access to data or technological transfer to the market players which could hypothetically be competitors.

CN The digital platform usually involves multi-sided markets, which is partially or completely free. Compared with the traditional industry, it has the characteristics of network effects and locking effects. Therefore, the competition authorities face challenges in market definition, competition assessment, remedies, and other aspects in the cases involving digital platforms. This requires the authorities, on the basis of further in-depth research, to adjust and employ flexibly the traditional concepts and tools of Anti-Monopoly Law according to the specific circumstances of the case concerned.

ZA South Africa's experience in digital markets is limited. However, depending on how the challenges presented by digital markets are addressed on a case-by-case basis, South Africa may either face increasing competitive, contestable markets in the future, where efficiency and continuous innovation prevail, or end up in situations of 'winner takes most.' Hence, each case needs to be assessed on its merits. From the mergers' perspective, the access condition with no room to discriminate should always be imposed. The difficulty will be to understand how the merging parties can use the sophisticated digital tools to circumvent the conditions.

Source: BRICS NCAs Questionnaire

To the extent that competition law regimes may integrate 'fairness' concerns and not focus on consumer surplus, or more broadly consumer welfare, it is possible that they may scrutinise more carefully mergers or conduct that may reduce competition and maintain or increase economic concentration in the market.

More concretely, competition authorities usually employ an error cost framework in their analysis over the need to intervene, or not on a specific market, following the

647 D. Autor, D. Dorn, L. Lawrence, F. Katz, C. Patterson & J. Van Reenen, Concentrating on the Fall of the Labor Share, (2017) 107(5) American Economic Review 180.

identification of a market failure resulting from the existence or the exercise of market power. Social costs can be of two sorts: ‘substantive costs’ (error costs)⁶⁴⁸ and ‘procedural costs’, also called costs of ‘error-minimizing procedures’ or decision costs)⁶⁴⁹. There is a negative correlation between these two forms of costs, as in order to evaluate accurately the costs or benefits of specific conduct and thus minimize substantive errors (false positives or false negatives), which are costly, one would need to spend more time and resources gathering evidence and assessing it, thus increasing decision costs. False positives (or type I error) occur when the decision maker finds violations although the conduct did not harm competition, while false negatives (or type II error) occur when the decision maker does not find violations although the conduct harmed competition.

For instance, an approach requiring the identification and analysis of all possible effects of a conduct on consumer welfare would have limited the likelihood of error costs, but at the same time increase the likelihood of decision costs (e.g. costs of information gathering and processing). Decision makers employ a sequential information gathering process in order to reduce information and, more broadly, decision costs, while of course aiming to minimize the occurrence of substantive errors.⁶⁵⁰ The decision to acquire more information is a trade-off between two types of costs: ‘error costs on the one hand’, that is the decision maker may mistakenly identify a pro-competitive practice as being anticompetitive or the opposite, and information or decision costs on the other.⁶⁵¹ This trade-off is done incrementally, at each level of this sequential assessment.

The assessment of costs involves some value judgment on the acceptability of type I or type II errors. These costs are not just administrative (the cost of arriving to a decision and implementing it) or substantive (the cost of an under-inclusive or over-inclusive rule with regard to the coverage of the rule on the basis of its statistical significance – how well the results represent the occurrence of false positives or false negatives in practice), but also the broader social costs of such errors. Indeed, it is possible that for several reasons competition law regimes may provide more weight in terms of social cost to false negatives than to false positives. The fact that digital markets are characterised by network effects, and the realisation that positions of power may be quickly entrenched

648 These are often the focus of competition law and economics commentators since the early 1970s and constitutes one of the principal contributions of the Chicago school of antitrust law and economics. As it is explained by J. Baker, *Taking the Error out of the ‘Error Cost’ Analysis: What’s Wrong with Antitrust Right*, (2015) 80(1) *Antitrust Law Journal* 1, 4, ‘(t)hat framework was first employed in the law and economics literature by Richard Posner during the 1970s and introduced into mainstream antitrust scholarship by Paul Joskow and Alvin Klevorick in 1979. Modern antitrust commentators often refer to Frank Easterbrook’s adoption of the framework in a widely-cited article published in 1984 but the idea is older: R. A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, (1973) 2 *Journal of Legal Studies* 399; P. L. Joskow & A. K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, (1979) 89 *Yale LJ*. 213; Frank H. Easterbrook, *The Limits of Antitrust*, (1984) 63 *Texas Law Review* 1.

649 Alex Stein, *Foundations of Evidence Law* (OUP, 2005), 1. One may also expand this category to ‘transaction costs’, which costs go beyond the costs of adjudication and information gathering but also include the costs of ‘uncertainty about legal rules’, which ‘chills beneficial conduct or means that those rules fail to deter harmful conduct’: J. Baker, *Taking the Error out of the ‘Error Cost’ Analysis: What’s Wrong with Antitrust Right*, (2015) 80(1) *Antitrust Law Journal* 1, 5.

650 C Frederick Beckner III and Steven C Salop ‘Decision Theory and Antitrust Rules’ (1999) 67 *Antitrust Law Journal* 41, 43.

651 *Ibid.*, 46.

after a tipping point and provide possibilities to some economic actors to leverage their powerful position in other markets, and thus to affect inequality may lead competition authorities to weigh more as cost of error false negatives than false positives, and consequently take a more pro-active approach, eventually relying on some form of implementation of the principle of precaution in competition law⁶⁵². The level of statistical significance is often set by the statistician in light of the acceptable rate of false positives. However, this issue is not related to substantive significance that measures the real social cost of false positives or false negatives, from a policy perspective. In order to assess substantive significance it is important to specify and examine the 'loss function' (utility loss associated with an estimate being wrong as a function of the difference between the estimated value and the real value), then, by what scale a number is large or small for the specific policy purpose and, finally, to perform a cost benefit analysis that will include the cost of this loss function⁶⁵³. Similar consideration may also take place when performing the error cost analysis with as only focus consumer welfare. One may also criticise the error cost framework altogether, in view of the rather rapid development of technology and the limited knowledge of competition policy makers and competition authorities as to the real impact of their decisions in the future. In this case, we can refer to a different mostly descriptive model relying on Bayesian statistics, where probabilities are always beliefs, rather than classical statistics where probabilities are objective. In the Bayesian analysis, the starting point is a 'prior belief' about the state of the world and then evidence changes those beliefs so that, having incorporated the evidence, the end point is a 'posterior belief' about the state of the world⁶⁵⁴. The challenge to Bayesian statistics has always been that the prior beliefs may affect the resulting posterior belief whereas, perhaps in an ideal world, the evidence alone would drive the conclusion.

4.2.2.2. Privacy

Breaches of privacy or data protection, facilitated by the use of Big Data and sophisticated computer algorithms, may affect millions of people and, depending on the purpose, even compromise the democratic process.⁶⁵⁵ The debate over the interaction of

652 See, for instance, the approach of the EU Court of Justice in Case C-52/09 *Konkurrenverket v TeliaSonera Sverige AB* [2011] ECR I-527, para 108, where the CJEU noted that '(p)articularly in a rapidly growing market, Article 102 TFEU requires action as quickly as possible, to prevent the formation and consolidation in that market of a competitive structure distorted by the abusive strategy of an undertaking which has a dominant position on that market or on a closely linked neighbouring market, in other words it requires action before the anti-competitive effects of that strategy are realised'.

653 Deirde Mc Closkey & Stephen Ziliak, *The Cult of Statistical Significance* (Univ. of Michigan Press, 2007), 97, who also note at 5 that '(a)ccepting or rejecting a test of significance without considering the potential losses from the available courses of action is buying a pig in a poke. It is not ethically or economically defensible'.

654 Specifically, Bayesian statisticians consider that an investigator will begin with a 'prior belief' about a given hypothesis, $P(h)$. Evidence may then allow those beliefs to be updated to give 'posterior beliefs' describing the likelihood of the hypothesis given the evidence, $P(h|e)$. Bayesian statisticians use Bayes Theorem to calculate their posterior beliefs using the formula $P(h|e) = P(e|h) * P(h)/P(e)$ where $P(e)$ denotes the probability of observing the evidence we see; $P(e|h)$ denotes the probability of observing the evidence given the hypothesis h ; and $P(h)$ is the prior belief

655 J Drexler, 'Economic Efficiency versus Democracy: On the Potential Role of Competition Policy in Regulating Digital Mar-

privacy and competition law has been particularly vivid in the EU, as well as in its Member States, in view of the ‘constitutional’ protection of privacy,⁶⁵⁶ and the existence of an elaborate system of data protection.⁶⁵⁷ The discussion has since moved on to all other jurisdictions, with the enactment of legislation protecting privacy⁶⁵⁸ and the development of data protection regulation⁶⁵⁹. In recent years, the digital sector has attracted the attention of competition authorities and regulators involved in data protection.⁶⁶⁰ Competition authorities have also looked to these questions when exploring the changes brought by platform competition.⁶⁶¹

One of these issues is whether merger control should take into account the fact that access to personal data may constitute an important source of market power⁶⁶². Competition authorities are also increasingly active in data markets, reviewing exclusionary conduct involving (personal) data, but also examining the possibility of applying the provisions on abuse of a dominant position against privacy breaches, discrimination and exploitative contracts, which may be facilitated by control of big data, companies interchanging individualized offers on the basis of the information they acquire on individuals’ willingness to pay through their past browsing history or other personalising factors; this enables them to charge different prices to various customers for homogeneous products (online personalised pricing).⁶⁶³ Certain competition authorities have found that these practices may represent an abusive imposition of unfair conditions on users,

kets in Times of Post-Truth Politics’ in D Gerard and I Lianos (eds), *Competition Policy: Between Equity and Efficiency*, (forthcoming, CUP 2019).

656 Article 7 of the Charter of Fundamental Rights lays down the right to respect for private and family life, home and communications, protecting the individual primarily against interference by the state.

657 Article 8 of the Charter of Fundamental Rights recognises the protection of personal data as a separate right, which goes beyond simply protecting against interference by the state, but entitles the individual to expect that his or her information will only to be processed, by anyone, if however this processing is fair and lawful and for specified purposes, that it is transparent to the individual who is entitled to access and rectification of his/her information. The EU has adopted Regulation (EU) 2016/679 General Data Protection Regulation [2016] OJ L 119/1 the protection of natural persons with regard to the processing of personal data and on the free movement of such data, which applies from 25 May 2018. Its scope is significant and wide-ranging.

658 ADD REFERENCES HERE

659 ADD REFERENCES HERE

660 See, European Data Protection Supervisor, *Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy* (March 2014); Autorité de la Concurrence & Bundeskartellamt, *Competition Law and Data* (May 16, 2016); US FTC, *Big Data – a Tool for Inclusion or Exclusion?* (January 2016) and the references included.

661 European Commission, *Online Platforms and the Digital Single Market Opportunities and Challenges for Europe*, COM/2016/0288 final; House of Lords, *Online Platforms and the Digital Single Market*, HL Paper 129 (2016); OECD, *Big Data: Bringing Competition Policy to the Digital Era*, DAF/COMP(2016)14.

662 See, M. Stucke and A. Grunes, *Big Data and Competition Policy* (OUP 2016) chs 6–8.

663 Autorité de la Concurrence & Bundeskartellamt (n 85) 21–22. See also, A Acquisti and HR Varian, ‘Conditioning prices on purchase history’ (2005) 24(3) *Marketing Science* 367; OFT 1489, *Personalised Pricing* (May 2013) finding also evidence of search discrimination, targeted discounting and dynamic pricing (use fluctuations in demand to change the prices of products depending on availability); A Ezrachi and M Stucke, ‘The Rise of Behavioural Discrimination’ (2016) 37 *ECLR* 484; A Ezrachi and M Stucke, *Virtual Competition* (HUP 2016) ch 12; M Bourreau, A de Streel and I Graef, ‘Big Data and Competition Policy: Market Power, personalised pricing and advertising’ CERRE Project Report (February 2017).

by limiting their ‘informational self-determination’⁶⁶⁴. These practices raise the question of the interaction between competition law and other social and technical regulatory regimes protecting consumers or personal data.

This is not the only available integration strategy for privacy concerns. A number of authors have put forward various strategies in order to ensure the commensuration of privacy concerns within the competition law toolbox, such as assessing privacy as an element of product quality,⁶⁶⁵ an element of consumer choice, or as a ‘non-monetary price’.⁶⁶⁶ Noting the ‘privacy paradox’, that is that consumers often state different preferences than those they actually reveal by their behaviour on the marketplace, these authors argue for the adoption of different methodologies than the price-based revealed preferences model of valuation, which has in any case difficulties to work in the context of a ‘free’ product not subject to monetary evaluation,⁶⁶⁷ as is often the case in these multi-sided markets.⁶⁶⁸ These approaches have in common that they treat privacy as a parameter of price competition⁶⁶⁹, even if this does not take a monetary form⁶⁷⁰.

In their effort to establish some form of commensuration that would enable balancing, some authors explore alternatives to the traditional consumer welfare standard:

- (i) a ‘*broad* consumer welfare standard’, which will indirectly take into account non-economic interests, to the extent that these are directly related to the relevant market and accrue to the consumers of these markets, in a similar vein than the approaches explored above regarding the integration of privacy;
- (ii) an ‘inclusive welfare standard’ that would take non-economic interests directly into account even if these do not affect the consumers of the relevant market, for instance through the consideration of some other unspecified aggregation method and

664 See, Bundeskartellamt, Facebook decision, B6-22/16, https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B6-22-16.html;jsessionid=D7517C62D2FECA034C11F273708EBC13.1_cid371?nn=3600108

665 M. Stucke and A. Grunes, *Big Data and Competition Policy* (OUP 2016), 65-66.

666 For a critical discussion of these approaches see, E. Deutscher, ‘How to Measure Privacy-Related Consumer Harm in Merger Analysis? A Critical Reassessment of the EU Commission’s Merger Control in Data-Driven Markets’ (2017) Faculty of Law, Stockholm University Research Paper No 40 <<https://ssrn.com/abstract=3075200> .

667 For a general discussion, see, JM Newman, ‘Antitrust in Zero-Price Markets: Foundations’ (2015) 164 U Pa L Rev 149; M Gal and D Rubinfeld, ‘The Hidden Costs of Free Goods: Implications for Antitrust Enforcement’ (2016) 80(3) *Antitrust Law Journal* 521.

668 E. Deutscher, ‘How to Measure Privacy-Related Consumer Harm in Merger Analysis? A Critical Reassessment of the EU Commission’s Merger Control in Data-Driven Markets’ (arguing for the use of conjoint analysis on the basis of consumer surveys exploring their responses to different hypothetical choice problems for different variations of the product (higher or lower standard of privacy protection); K Bania, ‘The role of consumer data in the enforcement of EU competition law’ (2018) 14(1) *European Competition Journal* 38 (advancing the need for a stated preferences/conjoint analysis method).

669 See, European Commission *Microsoft/LinkedIn* (Case COMP/M.8124), para. 350. The Commission had found that privacy was an important parameter of competition and driver of customer choice in the market for professional social networking services.

670 For a further discussion of privacy as a parameter of quality and methodologies, see Chapter X of this Report.

- (iii) a ‘capability approach’, that would not rely on a welfarist standard.⁶⁷¹ The last approach relies on the theoretical framework put in place by Amartya Sen, focusing on ‘well-being’, rather than welfare.⁶⁷² This calls for a new metric enabling some degree of commensuration and interpersonal comparison relying on the concepts of ‘functionings’ and ‘capabilities’. ‘Functionings’ are ‘beings’, such as being well-nourished, being undernourished, being safe, being able to participate to social and economic activities, but also being in bad health, and ‘doings’, such as voting in an election, travelling, eating to your hunger, consuming fuel to get warm, but also taking illicit drugs. For instance, consuming a lot of fuel might be considered as a positive thing for someone taking a growth perspective, while a bad thing for an environmentalist or from a sustainable growth perspective. Capabilities constitute a person’s real freedoms or opportunities to achieve these specific functionings. Contrary to the welfarist perspective, in the capabilities approach social welfare is not seen as ‘a function of the person-specific distribution of each commodity’, but ‘as a function of the combination of everyone’s functioning vectors (or of everyone’s capability sets)’.⁶⁷³

The legal status of the right to privacy, which is recognised in some jurisdictions,⁶⁷⁴ as well as the development of specific legislation to ensure data protection,⁶⁷⁵ should also provide the evidence of the hypothetical extended preferences of consumers/citizens to have their personal data protected, even if in practice their choice on the market may reveal that they are ready to be lured to sacrifice it for some other immediate gratification/benefit (e.g. free search). Their behaviour as revealed by their choices in the market sphere may not constitute evidence of their true preferences, as it cannot be excluded that their behaviour may have been manipulated by a more powerful actor. It would therefore make sense to also rely on evidence of these extended preferences by looking to the rights and duties provided for in legal system where all actors are, at least formally, equal.

4.2.2.3. Fairness and complex equality

There is a widespread perception in public opinion and among commentators, that the small number of digital platforms and the resulting global economic concentration may have important implications on the political process, further undermining the autonomy of the political and cultural order vis-à-vis the economic order. For example, there are studies documenting how corporate lobbying is directly related to firm size⁶⁷⁶ and

671 [R Claassen and A Gerbrandy, ‘Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach’ \(2016\) 12\(1\) Utrecht Law Review 1.](#)

672 A Sen, *Inequality Reexamined* (OUP 1995) 92.

673 *ibid*, 95.

674 [See, for instance, in the EU, Article 7 of the EU Charter on Fundamental Rights.](#)

675 [See, for instance, in the EU, Regulation \(EU\) 2016/679 General Data Protection Regulation\), \[2016\] OJ L119/1 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC.](#)

676 M. D. Hill, G. W. Kelly & R. A. Van Ness, *Determinants and Effects of Corporate Lobbying*, (2013) 42(4) *Financial Manage-*

evidence that large digital platforms are important contributors to the lobbying industry⁶⁷⁷. There is also evidence that the Big Tech industry has led an effort to influence academic writing in the area of competition law and policy⁶⁷⁸. Overall, the greater the market power enjoyed by firms, the more they have “both the ability and the need to gain political power”⁶⁷⁹. This has led a number of authors to argue that competition law should have a role in order to ensure the autonomy of the political and social sphere, on the basis of the principle of ‘complex equality’⁶⁸⁰. According to this view, economic power may lead to political and cultural power, not only in the sense that it will generate some form of resource dependence, measured by the ability to raise prices profitably on a relevant market, or the ability to exercise superior bargaining power, in the specific social sphere (monopoly), but also because it will influence the options available for each individual agent in other spheres of social activity. Dominance will therefore challenge the autonomous distribution criteria applying in the various social spheres.

The existence of autonomous distributive criteria requires that no citizen’s standing in one sphere or with regard to one social good can be undercut by his standing in some other sphere, with regard to some other good. ‘Complex equality’ aims to narrow the range within which particular goods are convertible and to preserve the autonomy of distributive spheres. Individuals interacting with digital platforms in the context of an on-line market transaction may use their algorithmic power to gain power in other spheres of social activity, which through lobbying they may later convert in economic power, as rent seeking and lobbying constitute the second most important driver of firms’ profitability.⁶⁸¹ Why should we not consider this multi-dimensional nature of competition, for

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677 See, <https://www.ft.com/content/7147935c-1f34-11e9-b126-46fc3ad87c65> ; https://www.washingtonpost.com/gdpr-consent/?destination=%2ftechnology%2f2019%2f01%2f23%2fgoogle-led-multimillion-dollar-tech-industry-lobbying-blitz-records-show%2f%3f&utm_term=.dda703aea532 ;

678 See <https://www.independent.co.uk/life-style/gadgets-and-tech/news/google-invests-favourable-academic-research-publicity-campaign-accountability-transparency-project-a7839466.html> .

679 L. Zingales, *Towards a Political Theory of the Firm*, NBER Working Paper No. 23593 (July 2017). Of course, other (cumulative or alternative) explanations for market concentration have been put forward: (i) the rise of IT and important expenses in developing IT systems (see, J.E. Bessen, *Information Technology and Industry Concentration*, (December 1, 2017). Boston Univ. School of Law, Law and Economics Research Paper No. 17-41. Available at SSRN: <https://ssrn.com/abstract=3044730> finding that industry concentration – the share of revenue captured by the top firms in a sector – is largely explained by the adoption of IT and that IT systems appear to play a major role in the recent increases in industry concentration and in profit margins, more so than a general decline in competition); (ii) the importance of investments in intangibles, such as brands, software, employee training, management (see J. Haskel & S. Westlake, *Capitalism without Capital* (Princeton Univ. press, 2017); (iii) the rise of “superstar firms” or “superforcasters” which are able to take advantage of technology, including Big Data and artificial intelligence, in understanding better than “standard” firms the competitive game) (see on “superstar firms”, D. Autor, D. Dorn, L.F. Katz, Ch. Patterson, J. Van Reenen, *The Fall of the Labor Share and the Rise of Superstar Firms*, NBER Working Paper No. 23396 (May 2017). For a comparative discussion of various causes, see J.E. Bessen, *Accounting for Rising Corporate Profits: Intangibles or Regulatory Rents?*, (November 9, 2016). Boston Univ. School of Law, Law and Economics Research Paper No. 16-18. Available at SSRN: <https://ssrn.com/abstract=2778641> .

680 For a discussion of this principle, see M. Walzer, *Spheres of Justice: A Defense of Pluralism and Equality* (Basic Books, 1983).

681 JE Bessen, ‘Accounting for Rising Corporate Profits: Intangibles or Regulatory Rents?’ (2016) Boston Univ School of Law.

the simple reason that the current version of competition law only focuses on price and output competition?

Indeed, digital platforms have become the central nervous system of modern capitalist value generation. Some jurisdictions, like the EU, have been quite concerned by the transformation of these digital platforms to important gatekeepers for various economic activities in the digital economy⁶⁸², and of their ability to leverage their economic power (resulting from the control of resources such as Big data, algorithms and Artificial Intelligence, on which the new model of economic production depends) in various domains of activity, including the capture of an even higher percentage of the total surplus value of the value chain⁶⁸³. Concerns over the fact that control of (personal) data by these digital platforms may affect privacy⁶⁸⁴, but also more generally the political process⁶⁸⁵, thus leading to the emergence of a dominant position over a dominant social good (the dominant social good in question being information) have been quite prominent in the current debate over the economic (and political/cultural) power of BigTech.

4.3. The changing competition game

New technologies require important investments and fixed costs for their developments. This may lead to increasing returns to scale, the average cost of producing output being smaller at larger levels of output. From the demand side, consuming such technologies often leads to network effects, as use of a product or service by any user increases the product's value for other users (sometimes even all users). In other words, the value of the product to one user is positively affected when another user joins and enlarges the network (positive network externalities)⁶⁸⁶. Furthermore, an additional user

[Law and Economics Research Paper No 16-18<ssrn.com/abstract=2778641>](https://ssrn.com/abstract=2778641) accessed 26 October 2018.

682 See, EU Communication on digital platforms of 25 May 2016 (COM(2016)288 final) 12, noting that “(a)s online platforms play an increasing role in the economy, the terms of access to online platforms can be an important factor for online and offline companies. For SMEs and micro-enterprises, some online platforms constitute important, sometimes the main, entry points to certain markets and data”.

683 This explains the recent focus of competition authorities in Europe on leveraging practices, with the aim to ensure the “equality of opportunity” of economic operators (see, European Commission, Case AT 39.740 – Google Search, paras 332 & 334), as well as recent ideas to regulate from a fairness perspective platform to business relations (see, Inception Impact Assessment, Fairness in Platform to Business Relation, Ares(2017)5222469, available at https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5222469_en).

684 See, European Data Protection Supervisor, Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy (March 2014); Autorité de la Concurrence & Bundeskartellamt, Competition Law and Data (May 16, 2016); US FTC, Big Data – a Tool for Inclusion or Exclusion? (January 2016). Some public authorities have also looked to these questions when exploring the changes brought by platform competition: European Commission, Online Platforms and the Digital Single Market Opportunities and Challenges for Europe, COM/2016/0288 final; House of Lords, Online Platforms and the Digital Single Market, HL Paper 129 (2016); OECD, Big Data: Bringing Competition Policy to the Digital Era, DAF/COMP(2016)14.

685 See, for instance, the debate about “fake news” presumably promoted by some digital platforms as being an “antitrust problem”: S. Hubbard, ‘Fake News Is A Real Antitrust Problem’, (2017) Competition Policy International; S.P. Sacher & J.M. Jun, ‘Fake News is not an Antitrust Problem’ (2017) Antitrust Chronicle.

686 This positive feedback loop may work in reverse and in case the technology/product fails to reach a critical mass of us-

of a search engine may increase the quality of search provided by this search engine, therefore benefitting all users, in view of the additional queries that this may direct to the search engine and consequently the increase in the stock of data/ information the specific search engine disposes about users and their preferences which can help search engines to offer better search services to all consumers (learning-by-doing effects). These positive feedback loop mechanisms explain why these markets are 'tippy' and are characterized by 'winner takes it all' competition. For instance, there might be fierce competition to conquer a market share advantage over rivals, with regard to the specific technology or standard applying in the industry, as the market may switch almost completely to the winner (competition for the market).

Digital firms (and in particular digital platforms) generate profit in two principal ways:

- (i) they may exploit, better than conventional firms, the willingness to pay of their users, either by better understanding through data harvesting and personalisation the willingness to pay of their various market sides (in case the platform acts as an intermediary), thus extracting a higher surplus for their 'matching', or by increasing their willingness to pay for the platform itself adding new functionalities and features and developing an ecosystem of complementary products, which increase the value of the platform'
- (ii) they may adopt value capture strategies that aim to extract more surplus value from their ecosystem, for instance by capturing 'value as a portion of the sale of every complementary product or service sold for the platform, including its complements they build themselves'⁶⁸⁷.

4.3.1. Financialisation and the re-interpretation of competition: implications for the digital economy

The recent discussion over the implementation of competition law in the digital economy has mainly focused on issues of access to data, interoperability of technologies and protection of final consumers from exploitation in product markets⁶⁸⁸. The starting point of the analysis provided and the recommendations take the traditional perspective of product market competition, with the additional emphasis put on data, as the most important input in the digital economy. This is of course an important dimension of competition, but hardly the most significant one, if one focuses on the process of value generation and capture in the digital economy, which is, as we described marked by the

ers, it may fall into a 'death spiral' and ultimately disappear: see H Varian, Use and Abuse of Network Effects (September 17, 2017). Available at SSRN: <https://ssrn.com/abstract=3215488>.

687 M. Cusumano, A. Gawer, D.B. Yoffie, *The Business of Platforms* (Harper-Collins, 2019), 79.

688 See, J. Furman et al., *Unlocking digital competition*, Report of the Digital Competition Expert Panel (March 13, 2019), available at <https://www.gov.uk/government/publications/unlocking-digital-competition-report-of-the-digital-competition-expert-panel> (hereinafter Furman report); J. Crémer Y.-A. de Montjoye & H. Schweitzer, *Competition Policy for the Digital Era* (Final Report, OPOCE, 2019), available at <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf> (hereinafter European panel of experts Report).

characteristic of futurity. Firms do not only compete in the product market dimension, the geographical boundaries of markets being to a certain extent expanded with the emergence of the Internet, but in the today's financialised economy, probably the most important locus of competition is capital markets. We will first describe the process of financialisation, before explaining how this could be relevant for our effort to understand competition in the digital era.

4.3.1.1. Financialisation and the rise of financial capitalism: implications for the digital economy and competition

The process of financialisation of the global economy has been described as a recurrent trend affecting a number of markets⁶⁸⁹. There has been a transformation of corporate control and behaviour since the 1970s. With the development of the multiproduct firm, in which managers sought to spread risks across various product lines in order to achieve greater profitability and to grow through mergers financed by leveraged buy-outs, private equity investing, financed by junk bonds and other innovative financial techniques, has driven an increase in the level of corporate debt. The financialisation of the modern corporation has been a marked feature of this evolution. This process led to an important increase of the profits of the finance sector (finance, insurance and real estate) from barely 10% to approximately 45% of total corporate profits between 1950 and 2001, while the profits of the manufacturing sector dropped during the same period⁶⁹⁰. It also led to a significant increase in the share of financial assets held by the non-financial sector of the economy and an increased importance of financial revenue for nonfinancial businesses⁶⁹¹. This period coincides with the prevalence of the shareholder value principle⁶⁹², which dominated corporate governance discourse since the 1970s, and the subsequent focus on short-term share price⁶⁹³. The shareholder primacy principle changed managerial priorities from that of maximising growth by re-investing corporate savings in the long-term productive potential of the corporation (the principle of 'retain and re-invest') to that of maximising stock value through extensive buybacks of corporate stocks (share repurchase) in order to inflate stock prices as the resulting artificial scarcity of shares boosts their value⁶⁹⁴.

689 More generally, see, G.A. Epstein, *Financialization and the World Economy*, (Northampton, MA: Edward Elgar, 2005); R.J. Shiller, R. J., *The New Financial Order. Risk in the 21st Century*, (Princeton: Princeton University Press, 2003); Johnna Montgomerie & Karel Williams, *Financialised Capitalism: After the Crisis and beyond Neoliberalism*, *Competition & Change* (June 2009) 13: 99-107; Ewald Engelen, *The Case for Financialization*, *Competition & Change* (June 2008) 12: 111-119; N. van der Zwan, *Making sense of financialization*, *Socio-econ Rev* (2014) 12 (1): 99-129; R. Solow, *How to Save American Finance from Itself – Has Financialisation gone too far?*, *New Republic* (April 8, 2013), available at <http://www.newrepublic.com/article/112679/how-save-american-finance-itself>.

690 *Ibid.*, p. 1-2.

691 *Ibid.*, p. 15.

692 W. Lazonick & M O' Sullivan, *Maximizing shareholder value: a new ideology for corporate governance*, (2000) 29(1) *Economy and Society* 13.

693 L. E. Davis, *The financialization of the nonfinancial corporation in the post-1970s U.S. economy* (2014), *Doctoral Dissertations*. 175.

694 W. Lazonick, *Profits without Prosperity*, *Harvard Business Review* (September 2014), available at <https://hbr.org/2014/09/>

Disciplined by a corporate market for control dominated by financial interests, in particular institutional investors, corporate managers became increasingly aligned with the interests of shareholders, and adopted strategies aiming to increase the price of their corporate stocks. They downsized their corporations (in particular cutting labour costs) in order to create short term shareholder value and distributed the freed up corporate revenues to financial interests, particularly shareholders, instead of re-investing them in the corporation (the principle of 'downsize and distribute')⁶⁹⁵.

An important facet of the financialisation movement has been the increasing leveraging of corporations through debt and other hybrid financial instruments and consequently their dependence on the investments of some institutional investors which increasingly now own shares in publicly listed companies, displacing ownership by physical persons⁶⁹⁶. Lazonick and O' Sullivan have highlighted how 'the rise of the institutional investor as a holder of corporate stocks encouraged top managers to align their own interests with external financial interests than with the interests of the productive organizations over which they exercised control'⁶⁹⁷. This literature has also shown how financial profits (mainly interest and dividend income as well as realised capital gains) form a significant part of corporate cash flow, this growing financialisation being inversely related to fixed investment⁶⁹⁸. The abandonment of the 'retain and re-invest' principle in favour of buybacks is indeed considered as one of the main sources of the stagnating productivity since the 1980s, as the economy is 'starved' from productive investments⁶⁹⁹. The expansion of non-financial corporations into financial assets holdings shifts firm-level portfolio composition from fixed capital towards liquid financial assets (such as cash and short-term investments) and raises leveraging, in particular for larger firms which become increasingly focused on stock market performance, while unlisted smaller and medium-sized firms slowly de-leveraged their balance sheets⁷⁰⁰.

[profits-without-prosperity](#) ; L. Palladino, Stock Buybacks, Driving a High-Profit, Low Wage Economy, (Roosevelt Institute, March 20, 2018), available at <http://rooseveltinstitute.org/stock-buybacks-high-profit-low-wage/> .

695 W. Lazonick, Profits without Prosperity, Harvard Business Review (September 2014), available at <https://hbr.org/2014/09/profits-without-prosperity> .

696 See, Serdar Çelik and Mats Isaksson, Institutional investors and ownership engagement, (2013) 2 OECD Journal: Financial Market Trends 93, 94 (noting that only 10% 'of all public equity is today held by physical persons').

697 W. Lazonick & M O' Sullivan, Maximizing shareholder value: a new ideology for corporate governance, (2000) 29(1) Economy and Society 13, 27.

698 E. Stockhammer, Financialisation and the slowdown of accumulation, (2004) 28(5) Cambridge Journal of Economics 719; L. E. Davis, The financialization of the nonfinancial corporation in the post-1970s U.S. economy (2014), Doctoral Dissertations. 175, p. 17.

699 See, for instance, I. Tung & K. Milani, Curbing Stock Buybacks: A Crucial Step to Raising Worker Pay and Reducing Inequality – An Analysis of Three Industries—Restaurant, Retail, and Food Manufacturing, (National Employment Law Project & Roosevelt Institute, July 2018), available at http://rooseveltinstitute.org/wp-content/uploads/2018/07/The-Big-Tradeoff-Report_072618.pdf (showing how buybacks in three segments of the food industry value chain reduce corporate resources that are available for growth-inducing activities, such as investing in research and development, spending on capital investments and new technologies, or creating new jobs and improving worker compensation).

700 L. E. Davis, The financialization of the nonfinancial corporation in the post-1970s U.S. economy (2014), Doctoral Dissertations. 175, p. 44.

The rise of institutional investors constitutes an epiphenomenon of this growing financialisation of the economy. This is a quite disparate group of legal entities whose purpose is mainly to manage and invest other people's money, although this is not always the case and there are hybrid forms of equity funds in which the managing partners co-invest with the limited partners⁷⁰¹. Institutional investors include traditional financial investors, such as investment funds (in particular index funds), pension funds and insurance companies, as well as 'alternative' institutional investors, such as hedge funds, private equity funds, and sovereign wealth funds⁷⁰². The degree of engagement of these institutional investors in the competitive strategy of the corporations they invest in varies. One may contrast active hedge funds or mutual funds, with some index funds are investment funds (mutual funds or exchange traded funds) that track mechanically the performance of an index and are presumed to be 'passive' as they have little incentives to invest in the stewardship of the companies in which they are present⁷⁰³. Hence, they defer excessively to the positions of corporate managers⁷⁰⁴. Because of their 'passive' nature, they are not concerned with firm-level performance, as would normally active shareholders, but to the extent they are investing in a group of companies, they are simply concerned by the performance of their portfolio of firms, without however their internal structure and governance leading them to engage with the governance of their portfolio companies.

The institutional investor and asset management market has witnessed in recent years a significant process of concentration. Recent research has found that the 20 largest asset management firms around the globe account for 43.3% of the top 500 managers' total assets under management (AUM) and represent US\$ 93.8 trillion in 2017, the highest level of concentration at least since 2000⁷⁰⁵. 'Passive' index funds, such as BlackRock with \$6.3 trillion total AUM, Vanguard Group with \$4.9 trillion total AUM, and State Street Global with \$2.7 trillion, constitute the top three asset managers globally in 2017 (called 'The Big Three')⁷⁰⁶, followed by Fidelity, with \$2.4 trillion AUM, which does offer passive

701 S. Çelik & M. Isaksson, Institutional investors and ownership engagement, (2013) 2 OECD Journal: Financial Market Trends 93, 96.

702 Ibid.

703 Note however that passive investment does not equal passive ownership. Lots of the common ownership literature stresses how index funds do engage significantly in corporate governance activities. The crucial difference is the investment time horizon – e.g. index funds, which have very low turnover, essentially invest in perpetuity and so have long horizons and are materially interested in good governance among their portfolio companies. In contrast, a quantitative active fund may buy and sell frequently as per the recommendations of their model and so do not establish meaningful relations with the management of portfolio companies.

704 For a discussion, L. Bebchuk & S. Hirst, Index Funds and the Future of Corporate Governance: Theory, Evidence, and Policy, (June 1, 2018). European Corporate Governance Institute (ECGI) – Law Working Paper No. 433/2018; Forthcoming, Columbia Law Review, Vol. 119 (2019); European Corporate Governance Institute (ECGI) – Law Working Paper No. 433/2018; Harvard Law School John M. Olin Center Discussion Paper No. 986. Available at SSRN: <https://ssrn.com/abstract=3282794>.

705 See, Thinking Ahead Institute, The world's largest 500 asset managers (Willis Towers Watson, 2018), available at https://www.thinkingaheadinstitute.org/en/Library/Public/Research-and-Ideas/2018/10/PI5002018_research_paper.

706 See, J. Fichtner, E. M. Heemskerk & J. Garcia-Bernardo, Hidden power of the Big Three? Passive index funds, re-concentration of corporate ownership, and new financial risk, (2017) 19(2) Business and Politics 298.

funds but they are just not that large⁷⁰⁷. The concentration of corporate ownership resulting from the concentration of the asset management market may lead index funds to be more actively engaged with corporate strategy and influence corporate management, either actively, for example by exercising the voting power of the shares owned by their funds, or more indirectly, by simply ‘doing nothing’. This may induce corporate management to internalise the index funds’ interests in competing firms, in view of the fact that their importance in the shareholding has risen significantly in recent years⁷⁰⁸. The rise of common ownership and the concentration of the asset management market may have considerably contributed to the loss of dynamism in the economy, the drop in productivity and the rise of firm markups⁷⁰⁹.

The spread of ICT and digitalization in all sectors of the economy has also led to the development of dedicated tech venture capital, mostly based in the Silicon Valley in the US, and concentrating in the hands of a few asset managers, with the knowledge, the network and the funds to credibly support the development of start-ups to large digital platforms at a global scale.

The combined effects of the shareholder value primacy and the rise of common ownership, as well as the subsequent concentration of asset management have important implications on the competitive strategies undertaken by the management of corporations. Together they challenge the ‘assumption of own-firm profit’ or value maximisation that has animated industrial capitalism since the 1930s⁷¹⁰, which forms part of the neoclassical theory of the corporation⁷¹¹. Subsequent literature has challenged the

707 Thinking Ahead Institute, The world’s largest 500 asset managers (Willis Towers Watson, 2018), available at https://www.thinkingaheadinstitute.org/en/Library/Public/Research-and-Ideas/2018/10/PI5002018_research_paper, p. 38.

708 See, M.C. Schmalz, Common-Ownership Concentration and Corporate Conduct, (2018) 10 Annual Review of Financial Economics 413, 444; S. Hemphil & M. Kahan, The Strategies of Anticompetitive Common Ownership, (December 1, 2018). Yale Law Journal, Forthcoming; NYU Law and Economics Research Paper No. 18-29; European Corporate Governance Institute (ECGI) – Law Working Paper No. 423/2018. Available at SSRN: <https://ssrn.com/abstract=3210373> (distinguishing between macro-mechanisms and micro-mechanisms that may account for the influence common owners may exercise on firm’s management, critically reviewing the effectiveness of the different mechanisms).

709 See, J. Shambaugh, R. Nunn, A. Breitwieser & P. Liu, The state of competition and dynamism: Facts about concentration, start-ups, and related policies. (Technical report, The Hamilton Project: Economics Facts, 2018), available at <https://www.brookings.edu/research/the-state-of-competition-and-dynamism-facts-about-concentration-start-ups-and-related-policies/>; G. Gutiérrez, & T. Philippon, Investment-less growth: An empirical investigation, Technical report (National Bureau of Economic Research, 2016); J. De Loecker & J. Eeckhout, The rise of market power and the macroeconomic implications, Working Paper 23687, (National Bureau of Economic Research, 2017); M. Backus, C. Conlon, M. Sinkinson, The Common Ownership Hypothesis: Theory and Evidence (Brookings, Economic Studies, 2019) (finding less a link between concentration in asset management and common ownership incentives than between a broader increase in diversification of investor portfolios and common ownership incentives).

710 This stems from the Fisher separation theorem stipulating that the goal of any firm is to increase its profits and present value to the fullest extent, the profit goals of the firm being completely separate from its diverse shareholders: I. Fisher, The Theory of Interest (Macmillan 1930). This principle stops the firm from caring what the shareholders’ utility function is, which is also an implication of the separation of management and control as envisaged by A. A. Berle & G. C. Means, The Modern Corporation & Private Property (Routledge; 2nd edition, 1991, first published in 1932).

711 For an interesting discussion, see H. Hovenkamp, Neoclassicism and the Separation of Ownership and Control, 2009). Faculty Scholarship. 1792. http://scholarship.law.upenn.edu/faculty_scholarship/1792.

separation theorem, finding that the turn to shareholder primacy in the late 1970s with the emergence of financialisation, and the fact that the shareholding of public corporations is less dispersed resulting from the rise in common ownership, may have multiple effects.

It may:

- (i) increase the influence of shareholders in determining the utility function of the corporations in which they invest, thus challenging one of the assumptions of the Fisher separation principle,
- (ii) it may lead shareholders not to want firm-profit/value maximisation, but instead maximisation of the value of their whole portfolio of shares in other firms present in the industry, and thus
- (iii) it may result in altering corporate managers' incentives to aggressively compete on product markets with competing firms in which the common owners also hold shares⁷¹².

These characteristics have important implications for competition law. Indeed, competition does not only take place in *product* markets (competition between products), as mainstream competition law assumes, but also in *capital* markets ('competition between capitals'). Competition becomes a struggle to lower costs per unit of output with the aim to gain more profit and market share and thus raise the rate of return of the capital invested⁷¹³. Some have also distinguished between *competition within an industry*, which forces individual producers to set prices that keep them in the game and compels them to lower costs so that they can compete effectively, thus leading to a turbulent equalization of selling prices but a dis-equalization of profit margin and profit rates, and *competition between industries*, the capital moving from one industry to another in search of higher profits, thus bringing about the equalization of profit rates between industries.⁷¹⁴

It is interesting to place the emergence of large global digital platforms in the context of the development of different forms of competition corresponding to the different stages (not varieties) of capitalism in the modern era⁷¹⁵. To some extent these global digital

712 For a detailed discussion, see M.C. Schmalz, Common-Ownership Concentration and Corporate Conduct, (2018) 10 Annual Review of Financial Economics 413

713 A Shaikh, Capitalism: Competition, Conflict, Crises (Oxford University Press, 2016).

714 Ibid., p 34.

715 For an interesting discussion, see B. Carbala Smichowski, Competition and Market Power: A Critical Reassessment in Light of Recent Changes, PhD thesis (Paris 13, 2018) (distinguishing different forms of competition for each period of capitalist development: 'predatory competition' (1840-1860) which corresponds to the phase of capitalism that is linked to the consolidation of the corporation as the organization carrying on the production and the delivery of goods and services; 'collusive competition' (1870-1910) linked to the need for firms facing important technological disruption brought by the second industrial revolution and the rise of patenting requiring important investments and fixed costs to control their competitive environment through explicit coordination with competitors, eventually through the first wave of M&As in view of the difficulty of forming cartels after the adoption of the Sherman Act in the US; 'constricted competition' (1920s-1945) with the development of vertical integration, product differentiation and advertising in order to manage demand, mass production, ex ante pricing etc., the dominant market structure during this period being vertically integrated oligopolies; 'Fordist competition' (1945-1970s) involving the development of industrial conglomer-

platforms have been compared to the industrial conglomerates that dominated the US and global economies from the 1950s to late 1970s. US economist Galbraith, commenting on the rise of the conglomerates, argued that they relied on industrial planning, which was necessary in order to provide the stability that the significant commitment of capital and time for the development of more sophisticated technologies required, the more technically sophisticated the product is, the more important it is for the economic entities to plan their industrial production, but also “manage demand” (e.g., through advertising), in advance⁷¹⁶. This could take several forms, one being vertical integration and different forms of contractual restraints. Galbraith coined the term of “technostructure” to refer to the main source of authority in this more technologically sophisticated part of the economy. This term did not only make reference to the management of corporations but to a broader corporate technocracy, which controlled corporate savings that were quite significant during this period and represented more than three fifths of the total of savings supplied. Indeed, most of the earnings of a corporation were not paid as dividends to stockholders, but were instead retained by the corporation and reinvested or used for wage increases, in what has been qualified as the ‘retain and reinvest’ model of the corporation.⁷¹⁷ The essence of the power held by the technostructure relied on the specialised knowledge that was necessary for the organisation of the production and sale of more sophisticated technologically products, capital and labour being relatively less important factors of production in this context. Galbraith noted a ‘shift of power in the industrial enterprise (...) from capital to organized intelligence’⁷¹⁸. Profit maximisation, which is for Galbraith ‘the only goal that is consistent with the rule of the market’, is not the goal of the technostructure, which exercises power in order to pursue other goals, and in particular the organisation’s own survival.⁷¹⁹ Price stability serves one of the main objectives of industrial planning, growth, as it facilitates ‘control and minimise[s] the risk of a price collapse that could jeopardize earnings and the autonomy of technostructure’⁷²⁰.

As explained above, the rise of financialisation led to the emergence of a different conception of the firm during the late 1970s, seen as a portfolio of activities, managed ac-

ates and multi-product firms leading to the emergence of the multidivisional form (M-firm), the production of technologically complex products requiring a more centralized organization for control, and aggressive antitrust and merger enforcement (also against vertical and conglomerate mergers) incentivizing firms’ diversification in related markets, firms making ‘profits over large quantities of standardized products instead of on large margins’ (ibid., 74); ‘finance-led competition’, which emerged as a reaction to the fact that the profit rate in the US has reached its lowest level since the beginning of World War II and led to a ‘financialised/assetized’ growth regime, leading to downsizing of conglomerates, modularization, fierce competition between international networks of vertically disintegrated firms (‘global value chains’) and the consequent ‘polarization of profit rate levels between firms’ (ibid., 80). During this period, the shareholders, in particular institutional investors, largely gained in importance with regard to workers and the firm’s management or technostructure.

716 J. K. Galbraith, *The New Industrial State* (Princeton Univ. Press, 1967).

717 See, on this concept and its opposition to the maximising shareholder value approach, W. Lazonick and M. O. Sullivan, *Maximizing shareholder value: a new ideology for corporate governance*, 29 *Economy and Society* 13 (2000).

718 Ibid., 70.

719 Ibid., 140 and 208–209

720 Ibid., 241.

cording to their financial performance (in terms of rate of return on investment), rather than defined in terms of productive capabilities. A number of diversified firms were broken up in the 1980s, this movement ending the period of the 'managerial corporation' and corporations' diversification in sectors unrelated to the main activity of the corporation. It also led to the rise of the power of market finance and of debt as the main source of corporate finance. The focus shifted on short term shareholder value by the development of lean corporations (downsize) and the distribution of profits to shareholders, rather than re-investing them in the corporation (distribute). During this period the interests of institutional investors and short-term financial markets' valuations took a more prominent role and the role of technostucture and long-term planning became more limited.

Digital platforms seem to constitute a hybrid between these models of 'retain and re-invest' and 'downsize and distribute'. They are characterised by conglomerate type of expansion, marked by high diversification, often driven by merger activity in weakly related markets, rather than organic growth. For instance, Amazon started off as an online retailer of books before being vertically and horizontally integrated to being a vendor of various products and also becoming a media and entertainment company, thus competing with other media and entertainment companies whose products it also sells on its platform. Amazon has also expanded in the Internet cloud business and storage and transmission of content to consumers. Intensive merger activity has been a feature of the technology industry in recent years⁷²¹, with Google having made 214 acquisitions since the company was founded, Microsoft 189, Apple 89, Amazon 77 and Facebook 65⁷²². They also constitute eco-systems based on various forms of governance, contractual and technological (see Chapter 3). Although most of the US-based digital platforms are financialised, to the extent that large institutional investors are a prominent presence among their ownership structures (see 4.3.1.2.1.), in view of the structure of the organisation of voting rights they are more tightly controlled by their management, quite frequently their founders (see 4.3.1.2.2.). This tends to put emphasis on the long-term growth of the company, which becomes an objective as such, rather than short-term profitability. The organisational structure of the company also has some features of the M-corporation model, although financial targets may be replaced by innovation/technology targets or user base targets. Digital platforms also invest in R&D, although this is probably justified by the innovation-competition they are facing and the pressure to win the 'winner takes most' competition game. At the same time, digital platforms with a strong presence of institutional investors proceed to the distribution of dividends and stock buybacks that characterize financialised corporations (see 4.3.1.2.3.). Hence, it is possible to hypothesize the emergence of a new 'hybrid' model, which we will call 'expand and distribute'.

Competition law and economics' doctrine has not so far proceeded to a thorough analysis of how the process of financialisation of the digital economy may impact on com-

721 See, <https://www.statista.com/statistics/511172/worldwide-technology-industry-mergers-acquisitions-total-deal-volume/>.

722 See, <https://www.visualcapitalist.com/interactive-major-tech-acquisitions/>.

petition law. In our view, this should play an important role as it may shed light on the competitive strategies of firms and also their welfare effects. For instance, some authors have observed the rise of ‘digital conglomerates’⁷²³ that emerged during the last decade, mostly through a spectacular number of mergers and acquisitions that have gone through without proper scrutiny by competition authorities. These authors acknowledge that conglomerates are formed because of a quest for market power: ‘although they diversify into seemingly unrelated markets, this may indirectly increase their market power’⁷²⁴. This may either occur ‘because high degrees of diversification increase multi-market contacts, thereby facilitating (tacit) collusion between conglomerate firms’, or because ‘(c)onglomerate firms may also use cross subsidies between different lines of business to increase their market power in a given market, for example through predatory pricing’ (the “deep pocket” theory)⁷²⁵. This is not of course the only reason we witness the birth and development of digital conglomerates, as these may be formed because of excess capacity in the use of their resources (e.g. data, technology, qualified and specialised personnel), because of the existence of ‘internal capital markets that may allow new ventures to obtain funding more easily than from external capital markets’, economies of scope (in view of the existence of sharable inputs, modular design and economies in product development) and ‘consumption synergies derived by consumers when adopting product ecosystems’⁷²⁶, these factors not usually perceived by competition authorities as raising concerns. Bourreau and de Streel argue that the specific characteristics of the digital economy should nevertheless lead to a different starting point regarding these motivations for conglomerate expansion. First, they contend that ‘by making strategies of product proliferation less costly and through the control of essential inputs’ these economies of scope in product development may allow a firm to foreclose competition⁷²⁷. Second, they note the role digital platforms play as gatekeepers, which is facilitated by their presence in various markets and areas of activity that are dependent on data, and the potential impact this may have on market outcomes and welfare⁷²⁸. Third, they warn about the real motives of conglomerate mergers, which may be to pre-empt competition by killing at its birth any opportunity for a potential competitor to emerge (“killer acquisitions”)⁷²⁹.

Similar concerns over the emergence of digital conglomerates have been raised by Nobel-prize winner Jean Tirole, who raised concerns as to the adoption of possible bundling practices that may exclude new entrants from the market:

“New entrants into online markets often begin with a niche product; if it proves successful, they expand to offer a much wider range of products and services.

723 M. Bourreau & A. de Streel, *Conglomerates and EU Competition Policy* (CERRE/CRIDS, March 2019), available at <http://www.crid.be/pdf/public/8377.pdf>.

724 Ibid., 7.

725 Ibid.

726 Ibid., 9-13.

727 Ibid., 17.

728 Ibid., 18-19.

729 Ibid., 21-23.

Google began with only its search engine before it became the company we know today; Amazon started by selling books. So what matters is whether new entrants can access the market in the first place. If a newcomer has a single original product that is better than what the incumbent offers, the incumbent might want to block it from gaining even a partial foothold in the market. The incumbent will do so not to improve its short-term profits, but to prevent the newcomer from later competing in areas where the incumbent occupies a monopoly position, or to stop the newcomer from allying with the dominant firm's competitors"⁷³⁰.

A dimension that is nevertheless currently missing from the debate is the role of financial markets in providing the impetus for conglomerate expansion and the constitution of conglomerates. We have been focusing too much on digital capitalism, without comprehending that the shift towards datafication may not have had such dramatic economic and social consequences so far if it was not paired with another older shift in the global economy, the emergence of the era of financialised capitalism. In order to understand this financial dimension and incorporate it into the competition law and economics framework, it becomes important to explore the role of financialisation in general, but also in particular with regard to the emergence and expansion of digital platforms.

4.3.1.2. Digital platforms and financialisation⁷³¹

This Section explores in more detail the influence of financialisation on digital platform companies. Financialisation at the firm level entails the ascendancy of shareholder value maximisation as the guiding principle of corporate behaviour among non-financial companies.⁷³² 'Financialised' firms act to improve the welfare of their shareholders, regardless of the impact of such actions on other stakeholders, including workers or society more generally.⁷³³

A clear indication of financialisation is the amount of cash firms redistribute to their shareholders through dividends and share buybacks, at the expense of other ends such as investment in R&D or improved worker remuneration.⁷³⁴ As noted above, we may contrast financialised firms that engage in such strategies with conglomerates, which dominated the Anglo-American economies until the 1970s and behave according to a business model built on the retention and reinvestment of profits.⁷³⁵

730 J. Tirole, *Regulating the Disrupters*, (January 1st, 2019), available at www.livemint.com/Technology/XsgWUgy9tR4uao-ME7xtlTI/Regulating-the-disrupters-Jean-Tirole.html (

731 This Section was drafted with a significant contribution by Andrew McLean and the research assistance of Igor Kharitonov.

732 See L. E Davis, *The financialization of the nonfinancial corporation in the post-1970 U.S. economy* (PhD thesis, University of Massachusetts 2014).

733 See Alexander Styhre, *The Financialization of the Firm: Managerial and Social Implications* (Edward Elgar 2015).

734 See M. Mazzucato, *The Value of Everything* (Penguin 2019).

735 For example, W. Lazonick, 'Stock buybacks: From retain-and-reinvest to downsize-and-distribute' (2015) Centre for Effective Public Management at Brookings <<https://www.brookings.edu/wp-content/uploads/2016/06/lazonick.pdf>> accessed 23 May 2019.

In this section we explore whether digital platforms have become financialised or if they more closely resemble traditional conglomerates. Furthermore, we suggest the traditional demarcation between strategies of ‘downsize and distribute’ and ‘retain and reinvest’ breaks down in the context of the digital platforms and we see the emergence of a new hybrid form of capitalism characterized by strategies of ‘expand and distribute’.

Our analysis centres on the five largest digital platforms by market capitalisation: Microsoft, Apple, Amazon, Alphabet and Facebook. Overall, we report mixed results. Apple, and to a lesser extent Microsoft, appear to be financialised. In contrast, Amazon, Alphabet and Facebook appear resistant to the financialisation trend.

To build a picture of the degree of financialisation among digital platform firms, we present quantitative data on the following: (i) shareholding patterns; (ii) shareholder voting rights; and (iii) dividend, share repurchasing and R&D activity.

4.3.1.2.1. Shareholdings of Digital Platforms

The presence of institutional investor shareholdings is a necessary (but insufficient) precondition for the financialisation of a firm. Institutional investors, through concentrating the stock ownership of dispersed asset holders, strengthen the voice of shareholders.⁷³⁶ Therefore, we examine the ownership structure of Microsoft, Apple, Amazon, Alphabet and Facebook. We remark upon the overall proportion of institutional investor ownership and the identity of top shareholders, including institutional investors, insiders (executive officers and directors), or investors that are neither institutional nor insiders. First, we observe that each platform is predominantly owned by institutional investors. This is illustrated below:

Digital Platform (<i>Nationality</i>)	Total Institutional Investor Shareholdings (%)	Total Non-Institutional Investor Shareholdings (%)
Microsoft (<i>US</i>)	73.5	26.5
Apple (<i>US</i>)	61.5	38.6
Amazon (<i>US</i>)	56.1	44.0
Alphabet (<i>US</i>)	79.4	20.6
Facebook (<i>US</i>)	73.0	27.0
Note: Data as of 5 May 2019, to one decimal place. Source: Bloomberg.		

In contrast, China-based digital platforms are characterised by the prevalence of non-institutional shareholding (see Figure 4.4.).

⁷³⁶ See William Lazonick and Mary O’Sullivan, ‘Maximizing shareholder value: a new ideology for corporate governance’ (2000) 29(1) *Economy and Society* 13.

Figure 4.4. China-based digital platforms: institutional versus non-institutional investors

Digital Platform (<i>Nationality</i>)	Total Institutional Investor Shareholdings (%)	Total Non-Institutional Investor Shareholdings (%)
Tencent (<i>China</i>)	0.4	99.6
Alibaba (<i>China</i>)	40.0	60.0
Note: Data as of 5 May 2019, to one decimal place. Source: Bloomberg.		

Source: Authors' compilation

A deep look into the shareholders of some of these Big Tech and the role of institutional investors and venture capitalists shows that the same institutional investors are often present in Big Tech.

Figure 4.5: Digital Platforms' shareholding: a panorama**FACEBOOK****INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP**

	Ownership Share
Institutional	72.96%
Non-Institutional	27.04%

TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS

Investor	No. of Shares	Ownership Share
Vanguard	176,427,337	7.34%
BlackRock	149,675,571	6.23%
Fidelity	116,022,748	4.83%
Price T Rowe	90,094,802	3.75%
State Street	86,216,867	3.59%

INSIDER AND OTHER MAJOR SHAREHOLDINGS

Investor	No. of Shares	Ownership Share
Mark Zuckerberg	377,901,839	15.73%
Combined all directors and executive officers (including Zuckerberg)	414,874,690	17.27%
Dustin Moskovitz	32595276	1.36%
Eduardo Saverin	53433148	2.22%

Insiders with at least 1% of total share ownership and non-institutional investors with at least 5% of total share ownership

Source: Authors' compilation

MICROSOFT**INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP**

	Ownership Share
Institutional	73.49%
Non-Institutional	26.51%

TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS

Investor	No. of Shares	Ownership Share
Vanguard	603102597	7.87%
BlackRock	507006157	6.62%
State Street	303610380	3.96%
Fidelity	254905697	3.33%
Price T Rowe	192592815	2.51%

INSIDER AND OTHER MAJOR SHAREHOLDINGS

Investor	No. of Shares	Ownership Share
Bill Gates	102992934	1.34%
Combined all executive officers and directors (including Gates)	106111414	1.38%

Insiders with at least 1% of total share ownership and non-institutional investors with at least 5% of total share ownership

Source: Authors' compilation

TENCENT**INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP**

	Ownership Share
Institutional	0.41%
Non-Institutional	99.59%

TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS

Investor	No. of Shares	Ownership Share
Fisher Asset Management	19,888,495	0.21%
DSM Capital Partners	7,563,929	0.08%
Parameters Portfolio Associates	2,738,910	0.03%
Ark Investment Management	2,614,306	0.03%
Rheos Capital Works	1,200,000	0.01%

INSIDER AND OTHER MAJOR SHAREHOLDINGS

Investor	No. of Shares	Ownership Share
Ma Huateng	819,507,500	8.66%
Combined all executive officers and directors (including Huateng)	867,433,373	9.17%
MIH TC (Naspers)	2,961,223,600	31.29%

Insiders with at least 1% of total share ownership and non-institutional investors with at least 5% of total share ownership

Source: Authors' compilation

ALIBABA**INSTITUTIONAL V. NON-INSTITUTIONAL OWNERSHIP**

	Ownership Share
Institutional	40.04%
Non-Institutional	59.96%

TOP FIVE INSTITUTIONAL INVESTOR SHAREHOLDERS

Investor	No. of Shares	Ownership Share
BlackRock	67,733,482	2.61%
Price T Rowe	60,090,770	2.32%
Ballie Gifford	49,028,056	1.89%
Vanguard	42,489,423	1.64%
Temasek Holdings	27,369,175	1.06%

INSIDER AND OTHER MAJOR SHAREHOLDINGS

Investor	No. of Shares	Ownership Share
Jack Ma*	167,159,739	6.45%
Joseph Tsai*	59,316,886	2.29%
Combined all executive officers and directors (including Ma and Tsai)*	247,552,556	9.55%
Softbank	746,998,571	28.81%
Altaba	383,565,416	14.80%

Insiders with at least 1% of total share ownership and non-institutional investors with at least 5% of total share ownership

Source: Authors' compilation

From the above, we consider that the China-based platforms are far less, or not at all, financialised. Their behaviour may thus correspond to the traditional conglomerate

model of the late industrial capitalism that also prevailed in the US before the beginning of the era of financialised capitalism in the late 1970s.

We further explore the varying patterns of ownership by examining the extent of stock ownership by the top five institutional investors in each of the digital platforms that are financialised and, where appropriate, the shareholdings of firm insiders and other non-institutional investors:⁷³⁷

- Microsoft's top five institutional investors own nearly one quarter of total outstanding shares,⁷³⁸ while all insiders combined own less than two per cent, with the majority of insider stock ownership held by Bill Gates.⁷³⁹
- Apple's top five institutional investors own just over one quarter of total outstanding shares,⁷⁴⁰ while all insiders combined own a negligible amount.⁷⁴¹
- Amazon's top five institutional investors own nearly 22 per cent of total outstanding shares,⁷⁴² while all insiders combined own approximately 16 per cent, with the majority of insider stock ownership held by Jeff Bezos.⁷⁴³
- Alphabet's top five institutional investors own nearly one quarter of total outstanding shares,⁷⁴⁴ while all insiders combined own 15 per cent of stock. Insider shareholdings is largely concentrated in ownership by Larry Page, Sergey Brin and Eric Schmidt.⁷⁴⁵
- Facebook's top five institutional investors own just over one quarter of total outstanding shares,⁷⁴⁶ while all insiders combined own approximately 17 per cent, with the majority of insider stock ownership held by Mark Zuckerberg.⁷⁴⁷ Dustin Moskovitz and Eduardo Saverin also own notable shareholdings, yet are neither institutional investors nor insiders.⁷⁴⁸

⁷³⁷ Institutional ownership data sourced from NASDAQ website, based on institutional investors' latest 13F filings. Data on insider and other non-institutional investor ownership taken from firms' Annual Reports (10-K SEC filings).

⁷³⁸ Microsoft's top five institutional shareholders are Vanguard (7.9%), BlackRock (6.6), State Street (4.0), Fidelity (3.3) and Price T Rowe (2.5). Cumulatively, 24.3%.

⁷³⁹ Combined all insiders own 1.4% of Microsoft shares, Bill Gates owns 1.3%.

⁷⁴⁰ Apple's top five institutional shareholders are Vanguard (7.4%), BlackRock (6.4), Berkshire Hathaway (5.4), State Street (4.0) and Fidelity (2.4). Cumulatively, 25.7%.

⁷⁴¹ All insiders aggregated own just 0.1% of Apple shares.

⁷⁴² Amazon's top five institutional shareholders are Vanguard (6.2%), BlackRock (5.2), Fidelity (3.6), Price T Rowe (3.2) and State Street (3.2). Cumulatively, 21.5%.

⁷⁴³ Combined all insiders own 16.1% of Amazon shares, Jeff Bezos owns 16.0%.

⁷⁴⁴ Alphabet's top five institutional shareholders Vanguard (7.3%), BlackRock (6.3), Fidelity (5.3), State Street (3.6) and Price T Rowe (2.4). Cumulatively, 24.9%.

⁷⁴⁵ Larry Page owns 6.7% of Alphabet stock, Sergey Brin owns 6.4% and Eric Schmidt owns 1.4%.

⁷⁴⁶ Facebook's top five institutional shareholders are Vanguard (7.3%), BlackRock (6.2), Fidelity (4.8), Price T Rowe (3.7) and State Street (3.6). Cumulatively, 25.7%.

⁷⁴⁷ Combined all insiders own 17.3% of Facebook shares, Mark Zuckerberg owns 15.7%.

⁷⁴⁸ Dustin Moskovitz owns 1.4% and Eduardo Saverin owns 2.2%.

4.3.1.2.2. Shareholder Voting Rights

In addition to simple measures of stock ownership, to gain insight into the financialisation of digital platforms it is also important to appreciate the nature of voting rights within these firms. Share class differentiation reduces the strength of the link between observed shareholding and voting rights. Unlike Microsoft, Apple and Amazon, which all offer only one class of share, Alphabet and Facebook have differentiated share structures.

Alphabet has three classes of shares: Class A shares, which confer one vote per share; Class B shares, which confer 10 votes per share; and Class C shares, which do not confer any voting rights. Only Class A and Class C are available to purchase on public equity markets, with Class B owned only by insiders and not publicly traded. According to Alphabet's most recent Annual Report, as of 31 December 2018 Larry Page, Sergey Brin, and Eric E. Schmidt beneficially owned approximately 92.8% of outstanding Class B common stock, which represented approximately 56.5% of the voting power of our outstanding common stock. Page, Brin, and Schmidt therefore "have significant influence over management and affairs and over all matters requiring stockholder approval, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or our assets, for the foreseeable future."⁷⁴⁹

Similarly, Facebook has a dual-class share structure: Class A shares conferring one vote per share and Class B shares conferring 10 votes per share. Class A can be publicly traded, while Class B is reserved for insiders. Due to his ownership of Class B shares, Mark Zuckerberg, Facebook's founder, chairman and chief executive officer, has control over key decision making. According to Facebook's latest Annual Report:

Mark Zuckerberg...is able to exercise voting rights with respect to a majority of the voting power of our outstanding capital stock and therefore has the ability to control the outcome of matters submitted to our stockholders for approval, including the election of directors and any merger, consolidation, or sale of all or substantially all of our assets.⁷⁵⁰

Based on the above observations regarding shareholding and voting power, we may expect Amazon, Facebook and Alphabet to be relatively less financialised in comparison to Apple and Microsoft. In the case of Amazon, while voting power is not entrenched through share class differentiation, Jeff Bezos remains the largest shareholder and therefore has greatest voting power. Mark Zuckerberg not only owns the most Facebook stock, but due to Facebook's dual-class structure, he has disproportionately great voting power. Likewise, Alphabet's three primary insiders – Larry Page, Sergey Brin, and Eric Schmidt – own sizeable proportions of stock and have outsized voting power due to Alphabet's differentiated share classes. In contrast, insiders of Microsoft and Apple benefit from neither meaningful proportions of share ownership nor voting power con

749 Alphabet Q4 2018 10-K SEC Filing.

750 Facebook Q4 2018 10-K SEC Filing.

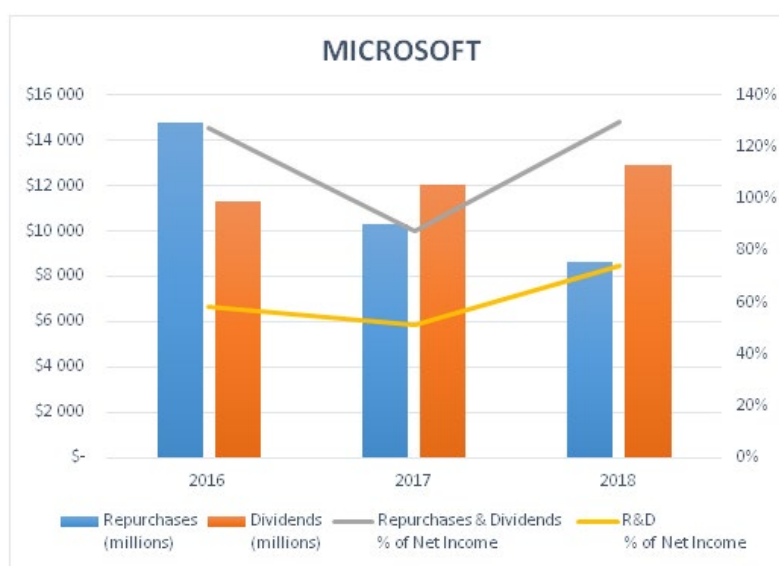
ferred by share class differentiation. This likely gives greater influence to the institutional investor shareholders of these two platforms.

4.3.1.2.3. Dividends, Share Buybacks and Investment

As noted, a primary indicator of a firm's financialisation is the amount of cash they dedicate to increasing the welfare of their shareholders through issuing dividends or inflating stock prices through share repurchases, potentially at the expense of other goals such as R&D investment. Here we examine the sums the largest five digital platforms spent on issuing dividends, repurchasing their own shares and R&D over five years from 2014 to 2018:⁷⁵¹

- Microsoft returned cash to its shareholders in every quarter, spending an average of \$10.7 billion per year on dividends and \$11.1 billion per year on share repurchases. At the same time, Microsoft spent an average of \$12.2 billion per year on R&D. Expenditure on dividends and share buybacks combined as a percentage of net income increased markedly across the period, from 71% to 130%. Expenditure on R&D as a proportion of net income also increased, from 52% to 74% (see Figure 4.6.).

Figure 4.6. Microsoft: Buybacks, Dividends and R&D



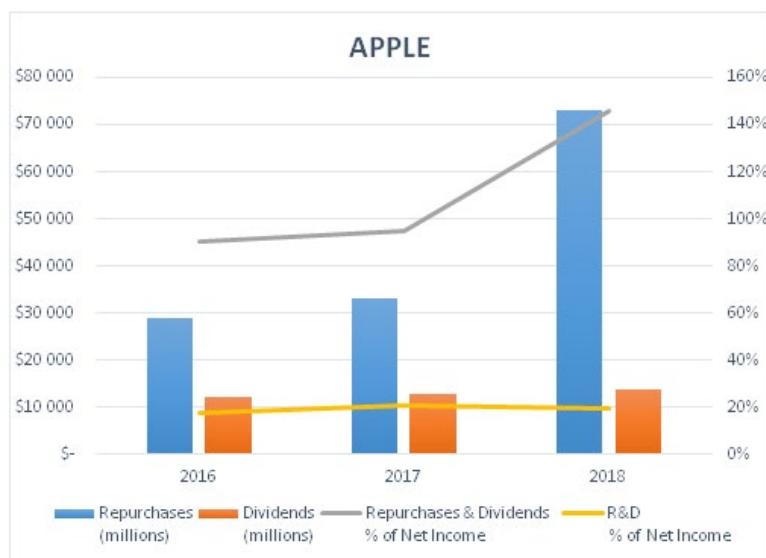
Source: Authors' compilation

- Apple returned cash to its shareholders in every quarter, spending an average of \$43.1 billion per year on dividends and \$12.2 billion per year on share repurchases. At the same time, Apple spent an average of \$8.0 billion per year on R&D. Expenditure on dividends and share buybacks combined as a percentage

⁷⁵¹ Net Income, Dividend and Share Repurchase data sourced from the digital platforms' Annual Reports (10-K SEC filings) and Quarterly Earnings Reports. R&D data sourced from the R&D data from Strategy&, 'The 2018 Global Innovation 1000 study' (PwC 2018).

of net income increased slightly across the period, from 142% to 146%. Expenditure on R&D as a proportion of net income also increased, from 11% to 19%. (see Figure 4.7.)

Figure 4.7.: Apple: Buybacks, Dividends and R&D



Source: Authors' compilation

- Amazon returned no cash to its shareholders across the period. At the same time, Amazon spent an average of \$13.4 billion per year on R&D. Expenditure on R&D as a percentage of net income increased markedly across the period, from -2726% in 2014, when net income was negative, to 225% in 2018 (see Figure 4.8.).

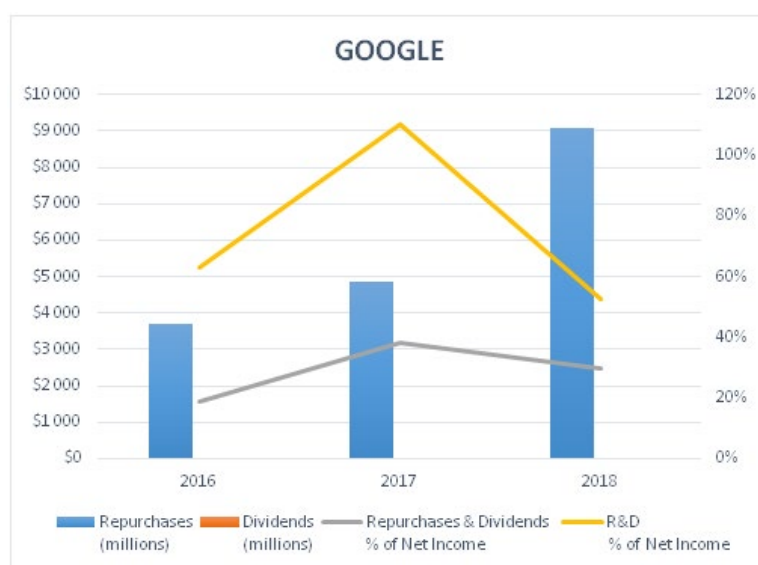
Figure 4.8. Amazon: Buybacks, Dividends and R&D



Source: Author's compilation

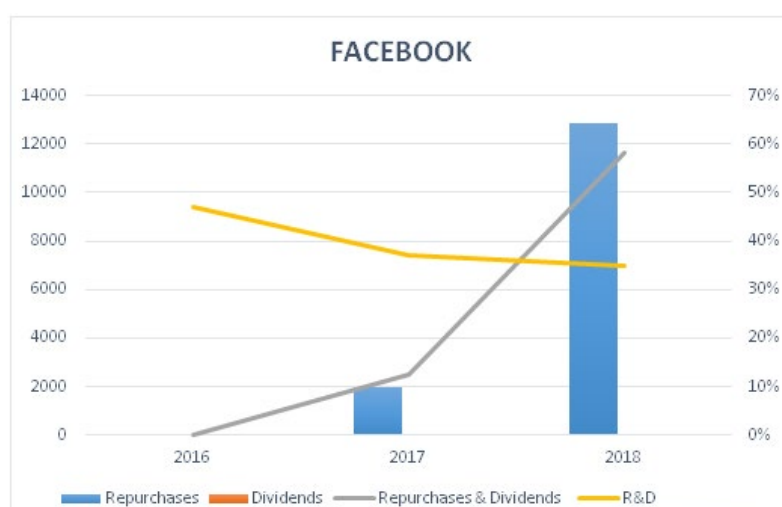
- Alphabet began to return cash to shareholders through dividends in the last quarter of 2015. It issued further dividends two quarters of 2016, three quarters of 2017 and every quarter of 2018. Across the period, Alphabet spent an average of \$3.9 billion per year on dividends. Alphabet engaged in no share repurchasing activity. In contrast, R&D expenditure was recorded across the entire period, averaging \$11.9 billion per year. Expenditure on dividends as a percentage of net income increased from 0% in 2014 to 11% in 2015 when dividend payments began and 30% by 2018. Expenditure on R&D as a proportion of net income increased slightly from 51% in 2014 to 53% in 2018 (see Figure 4.9.).

Figure 4.9. Alphabet (Google): Buybacks, Dividends and R&D



Source: Author's compilation

- Facebook began to return cash to shareholders through dividends in the first quarter of 2017. It issued dividends throughout 2017 and 2018. Across the period, Facebook spent an average of \$3.0 billion per year on dividends. Facebook engaged in no share repurchasing activity. In contrast, R&D expenditure was recorded across the entire period, averaging \$4.5 billion per year. Expenditure on dividends as a percentage of net income increased from 0% in 2014 to 12% in 2017 when dividend payments began and 58% by 2018. Expenditure on R&D as a proportion of net income decreased from 48% in 2014 to 35% in 2018 (see Figure 4.10.).

Figure 4.10. Facebook: Buybacks, Dividends and R&D

Source: Author's compilation

Our contention that Microsoft and Apple are characterised by a greater degree of financialisation, due to the nature of their share ownership and voting rights, appears to be supported by the data on dividends, share buybacks and R&D expenditure. From this perspective, Amazon, Alphabet and Facebook could more readily be likened to pre-financialisation era conglomerates. We note, however, that the strong merger activity undertaken by Microsoft and Facebook undermines the traditional distinction between 'downsize and distribute' and 'retain and reinvest'. The term 'expand and distribute' may be more apt, describing a hybrid period of financialisation and digitalisation.

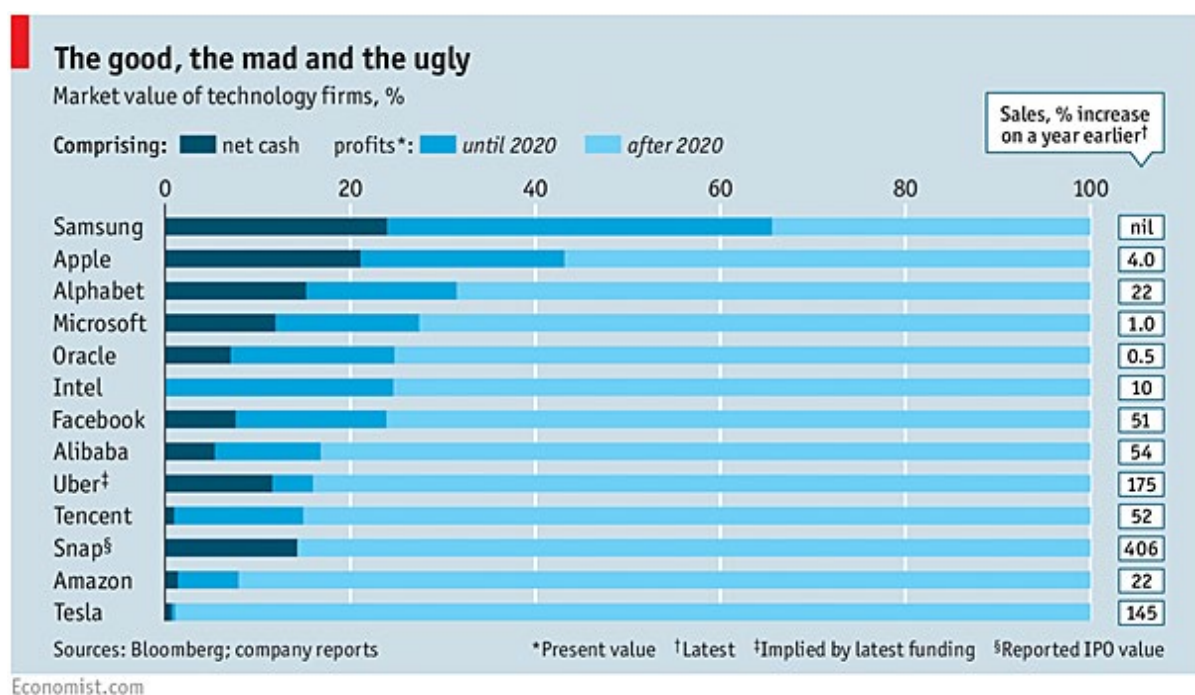
4.3.1.3. Futurity and the financial dimension of competition in the digital economy

Financial markets play a crucial role in determining the market value of corporations, and consequently the compensation of their management. Due to futurity, market valuation relies on the expectation of future profits, rather than on actual profits being made by the firm. This may explain a number of competitive strategies that would often not make sense if one only takes into account product competition. This dimension of competition may have significant effects on productivity, innovation and the share of surplus value between the different segments of digital value chains.

Digital platform's growing output is not motivated by their increasing profitability in product markets, as it has by now been well documented that many of these platforms have been incurring important losses or not making profits for a considerable period of time. Motivated by network effects and the quest for the holy grail of the 'tipping point' that will enable them to become the winners in the 'winner takes most' competition, digital platforms drive to increase its market value is motivated by the signal this provides to financial markets. Indeed, their strategy is to increase their market share, even in the presence of negative profit margins. In this they are driven by the futurity of financialised capitalism, which value not their current cash flow but expected profits in the short and medium term.

One way to understand the importance of financialisation in this industry as the main drive of value creation is to see how much of these companies' current market worth is expected to be realised soon and how much relies on expected returns into the future. In February 2017, The Economist identified the ten most important digital platforms and three promising ones and distinguished their market value into three parts: value which has already been realised in the form of net cash held, the present value of expected earnings in the next four years, and the value attributable to what happens after 2020⁷⁵² (see Chart 4.1.).

Chart 4.1.: Market value of technology firms and futurity



Source: Economist (February 23, 2017)

The article notes how the shares of technology firms trade on their highest ratio to sales, four of the world's most valuable firms being tech companies: Apple, Alphabet, Microsoft and Amazon. While over 40% of Samsung's and Apple's value can be explained by cash and near-term profits, as the firms do not follow a rapid growth strategy and are low-risk, for some of the 'raciest firms', such as Tesla, 90% of their value concerns expected profits to be made after 2020. As it is explained in the article, Amazon is 'one of the most optimistically valued firms', as 92% of its current worth refers to profits after 2020. Only a third of the \$1 trillion of Apple's value is justified by its profitable cloud-computing arm, AWS, while the rest of the activities of the firm in e-commerce, television and films, as well as logistics, 'barely makes money despite generating large sales'⁷⁵³. Nor is it growing particularly fast for its industry. To justify this valuation one needs to believe that the company has become a sort of 'giant utility for e-commerce which by 2025 cranks out

⁷⁵² See, <https://www.economist.com/business/2017/02/23/are-technology-firms-madly-overvalued>.

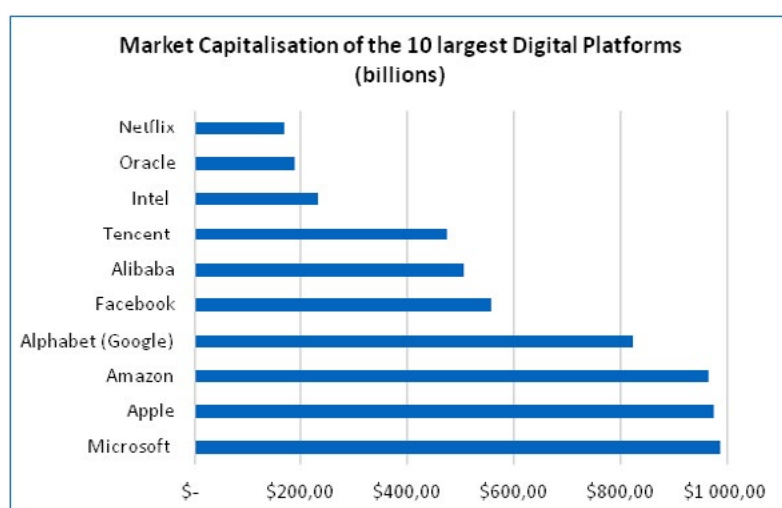
⁷⁵³ Ibid.

huge profits, more than any other firm in America'. Some of the other firms in the list, such as Alibaba, Tencent, Facebook and Alphabet, see their sales growing at an annual rate of over 20%, with high margins. A number of 'blue-sky' firms, such as Uber and Snap are unprofitable but witness explosive sales growth.

Hedge fund managers are not anticipating the same profit stream twice for each functionality. For example, Facebook is not expected to become a force in search, while Google is not expected to conquer social media. Hence, the reason that these firms are highly valued is their monopolistic potential as they control important bottlenecks in the attention and prediction economy.

Digital platforms have reached almost incredible market valuations (see Figure 4.11)

Figure 4.11. Market Capitalisation of the top 10 Digital Platforms



Source: Author's compilation

Notes and Source: Market capitalisation in billions (USD), as at 5/5/19. Source: Bloomberg Markets

List of platforms based on P Evans and A Gawer, 'The Rise of the Platform Enterprise: A Global Survey' (2016).

Rankings updated for market capitalisation as at 5/5/19, including newly floated companies

The role of financial markets in the valuation of these digital platforms is also manifested by the important role played by institutional investors and certain star venture capitalists that invest in technology firms, start-ups and Big Tech, accompanying them along the process, or for part of it, and playing a very important role of quality certification that impacts significantly on the market valuation of these companies, and may make them or break them.

4.3.2. Competitive advantage beyond horizontal competition

Competitive strategy analysis focuses on competition, taking into account the corporate strategy to maximise the firm's performance, in terms of surplus value and economic profit⁷⁵⁴. Corporations seek a competitive advantage, either by imitating successful competitors while lowering their costs, or by differentiating themselves from their competitors, by developing internal resources and capabilities and designing strategies to exploit these differences. The business environment in which competitive advantage strategies are integrated is formed by the relationship the corporation has with three sets of players: customers, suppliers, and competitors⁷⁵⁵. Firms make profits but they must also provide value to their customers. 'Value is created when the price the customer is willing to pay for a product exceeds the costs incurred by the firm'⁷⁵⁶. This surplus is distributed between the customers and the producers by the forces of competition. If competition is strong, consumers will receive the higher percentage of the surplus value (the so called consumer surplus, which measures the difference between the price they paid and the price they were willing to pay). The rest of the surplus value will be received by producers (the so called producer surplus, which measures the difference between the amount a producer receives and the minimum amount the producer is willing to accept for the product). The profitability of industries varies, some earning high rates of profit, while others can cover a little more than their cost of capital⁷⁵⁷. This largely depends on the degree of competition that prevails in each industry, as intense price competition generally leads to weak margins. Profitability within a specific industry may also be quite different, some firms earning significant profits, while others struggling to maintain themselves on the market⁷⁵⁸.

The most widely used competition framework in business strategy is that put forward by Michael Porter, the 'five forces of competition framework'⁷⁵⁹.

754 Economic profit is 'the surplus available after all inputs (including capital) have been paid for': R M Grant, *Contemporary Strategy Analysis* (Wiley, 2013) 38. To the extent that financial markets look to the actual but also expected stream of economic profit (or cash flows), the Net Present Value (NPV) (or stock market value) of a firm provides a forward-looking performance measure, which has become extremely important, in view of the financialisation of the economy and the intense competition between capitals. Enterprise value depends on three drivers: rate of return on capital, cost of capital and profit growth: *Ibid.*, 42.

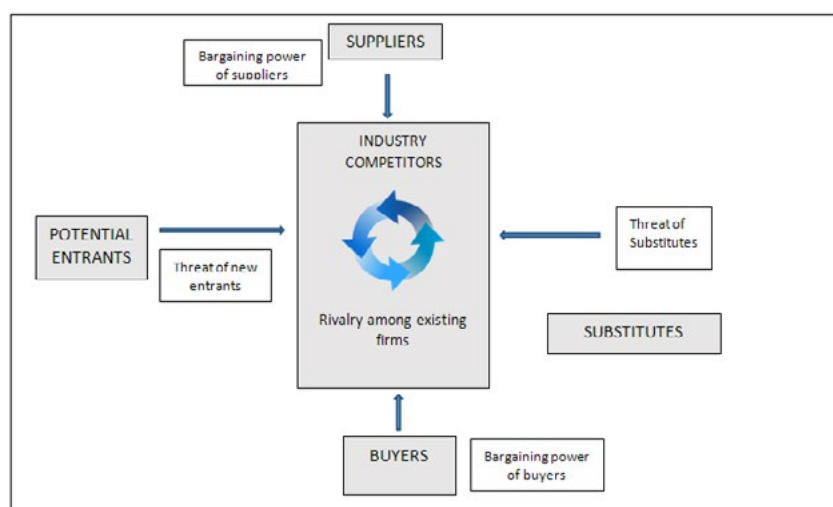
755 *Ibid.*, 61.

756 *Ibid.*, 62.

757 *Ibid.*

758 The advent of the digital economy has led to the development of what has been characterized as the rise of "superstar firms" which are able to take advantage of technology, including Big Data and artificial intelligence, in understanding better than "standard" firms the competitive game. See, D. Autor, D. Dorn, L.F. Katz, Ch. Patterson, J. Van Reenen, *The Fall of the Labor Share and the Rise of Superstar Firms*, NBER Working Paper No. 23396 (May 2017).

759 M. E. Porter, *The Five Competitive Forces that Shape Strategy*, (January 2008) *Harvard Business Review* 25.

Figure.4.12: Porter's five forces

Source: R M Grant, *Contemporary Strategy Analysis* (Wiley, 2013) 65.

According to this framework, the profitability of an industry is determined by five sources of competitive pressure: competition from substitutes, competition from new entrants in the industry, competition from established rivals, which can be characterised as sources of 'horizontal' competition, and competition from the bargaining power of suppliers and the power of buyers, which can be characterised as sources of 'vertical competition'.

In the context of the 'winner takes most' competition of the digital economy and the role of financial markets valuation in competitive strategy in the era of financialisation, vertical competition becomes an important dimension of the competitive game.

Competition economics has largely focused on horizontal competition from established competitors (producing substitute products), or on the threat of entry of potential competitors. Rivalry between established competitors is often measured by reference to the level of market concentration, often measured by a concentration ratio, the market share of the largest producers in a specific market. However, it is still unclear how the level of market concentration impacts on profitability, and consequently the allocation of the surplus between consumers and producers⁷⁶⁰. The likelihood of a new entry (potential competition) largely depends on barriers to entry, that is, an advantage that an established firm enjoys vis-à-vis its rivals, which may include economies of scale (to the

760 See, the different positions of the so called 'Harvard' or Structure-Conduct-Performance school, which found a causal link between a concentrated market structure and profitability [see, J.S. Bain, *Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936–1940*, (1951) 65 *Quarterly Journal of Economics* 293 (who showed that showed that the after-tax returns on shareholder equity across forty-two U.S. manufacturing industries were higher when the eight-firm concentration ratio (sum of the shares of the eight leading firms) was above 70 percent); H.M. Mann, *Seller Concentration, Barriers to Entry and Rates of Return in Thirty Industries*, (1966) 48 *Rev Econ & Statistics* 296], and that of the so called 'Chicago' school, which found that this effect was weak statistically and usually quite small [see, Y. Brozen, *Bain's Concentration and Rates of Returns, Revisited*, (1971) 14 *Journal of Law & Economics* 351; H. Demsetz, *Two Systems of Belief about Monopoly*, in H. J. Goldschmidt & H. M. Mann, (eds), *Industrial Concentration: The New Learning* (Little, Brown, 1974) 164].

extent that large, indivisible investments in production facilities, research & technology or marketing may be more easily amortized over a large volume of output), absolute cost advantages (which may come from an easy access to an indispensable input), capital requirements (because of the large fixed costs required in order to kick start economic activity in an industry), product differentiation (as it might be quite difficult to enter a market where consumers have strong loyalty ties to existing brands), access to channels of efficient distribution, strategic barriers to entry because of competitive strategies that aim to increase the potential rivals' costs if they enter the market, legal and regulatory barriers etc. Competition law aims to limit the effectiveness of barriers to entry, so as to increase the 'contestability' of the market⁷⁶¹.

In contrast, vertical competition has not been the focus of competition economics, even if it may play a significant role with regard to the allocation of the total surplus value that is generated by a value chain. The relative bargaining power of a supplier upstream, or of a customer downstream, have been considered as playing a less important role than 'horizontal competition', in particular because it is assumed that, in most cases, they play a quite limited role on the overall economic efficiency of the transactions. To the extent that economic efficiency still constitutes one of the main goals of competition law, rather than fairness in the distribution of the total surplus value, the exercise of relative bargaining power is not considered as being a primary concern for competition law, with the exception of course of the situation where its exercise may harm economic efficiency (e.g. the rather confined case of monopsony or buyer power). Vertical competition may however become an important concern, if one wants to focus on productivity and on the ability of 'superstar' large digital platforms to pull away from competition and enjoy tremendous levels of profitability, without these accumulated profits being used for productive investments.

In the digital economy, what constitutes an established or a potential competitor becomes also blurred, as the companies are actively pursuing strategies to alter industry structure in order to alleviate competitive pressures, by positioning the company where competition, horizontal and vertical, is the weakest⁷⁶². In the digital economy, important network effects lead to 'winner- takes- most' competition, with only one platform controlling a market, or being the significant player on a relevant market (thus restricting horizontal competition), or more broadly dominating a value chain (thus restricting vertical competition). Markets characterised by platform competition are thus horizontally concentrated, sometimes to such an extent that the second or third player in the market may not offer a viable competitive alternative to the established platform. Inter-platform competition remains weak, and there is significant *inequality in the distribution of market shares* among horizontal competitors.

At the same time, the centralized platform forms a bottleneck, with the power to determine the allocation of the surplus generated by the value chain between the various

761 W.J. Baumol, J.C. Panzar & R.D. Willig, *Contestable Markets and the Theory of Industry Structure* (Harcourt Brace Jovanovic, 1982).

762 R.M. Grant, *Contemporary Strategy Analysis* (Wiley, 2013) 74-76.

contributors, and in particular to keep the overwhelming part of this surplus, thus accumulating significant profits (exercising vertical economic power). In view of the anchoring of users and the low levels of switching to competing platforms, the platform operators can be confident that the reduction of vertical competition, between the different segments of the value chain, with regard to the allocation of the total surplus value generated by the value chain, will not lead to the desertion of their platform from a significant number of applications developers. Hence, value chains dominated by digital platforms are also marked by a very *unequal distribution of profits* between the established platforms and the participants to their ecosystem.

The digital economy gives rise to a variety of strategies to acquire competitive advantage and convert this to surplus value to be later collected in product and financial markets. In this fast-moving environment, innovation competition provides the main constraint to 'winner-takes-most' competition, as new economic actors rely on cost-cutting technology to break into markets, disrupt the existing competitive structure, and eventually acquire a position of economic power, before they give way to new actors making a more efficient use of the technology or relying on a better technological alternative.

4.3.3. Vertical competition: introducing the concept

Although we have a number of theories explaining horizontal competition, with some exceptions, vertical competition has been largely ignored in competition law and economics literature.

The issue was first raised in competition law literature on vertical restraints, in particular dealing with contexts in which the supplier and distributors may be in competition with each other (e.g. dual distribution, private labels). Robert Steiner has advanced the view that there are two forms of competition that co-exist in vertical structures: First, the horizontal competition between the different vertical structures or between the retailers of the same vertical structure, and second, the vertical competition between the different levels of the vertical structure, such as suppliers versus retailers over the sharing of the profits of the vertical chain⁷⁶³. Steiner perceives competition as a struggle between firms aiming to capture a perceptible share of markets from each other (which is the traditional view of horizontal competition) but also an important share of sales or margins. It follows that suppliers and retailers engage 'in a form of vertical intrabrand competition by attempting to increase their vertical market share (VMS) at each other's expense', where vertical market share consists in their respective shares of a brand's retail price⁷⁶⁴. In contrast to the Chicago school and Transaction Cost Economics (TCE) approaches to vertical restraints, this literature perceives the relation between the different levels of the vertical chain as not being exclusively complementary, but also as antagonistic⁷⁶⁵.

763 R.L. Steiner, 'Intrabrand Competition-Stepchild of Antitrust', (1991) 36 The Antitrust Bulletin 155, 161.

764 Ibid.

765 R.L. Steiner, 'The Inverse Association Between the Margins of Manufacturers and Retailers' (1993) 8 Review of Industrial Organization 717; R.L. Steiner, 'The Virtual Equivalence of Horizontal and Vertical Competition—An Analysis of the Sources of Market Power in Consumer Goods Industries' (2007 Loyola Antitrust Colloquium) 7 <http://www.luc.edu/law/>

Steiner suggested an alternative approach for vertical restraints that affect intrabrand competition between retailers. He considered that the 'single-stage paradigm' of vertical restraints, which emphasizes the analysis of the existence of interbrand competition and largely ignores the role of vertical competition, does not correspond to commercial reality. The dual stage model, he suggested, will not only focus on the existence of market power at each level and/or horizontal competition between suppliers or between dealers, but will also examine competitive relationships between manufacturers and retailers⁷⁶⁶. Consequently, the 'locus of market power' and consequently the source of the restraint, supplier or retailer market power, should be an important consideration in the enforcement of competition law⁷⁶⁷.

One may focus on competition in products market and explore the process of value generation in the context of a typical input-output process. In the digital economy, the main input is data, hence we will frame our analysis accordingly. Any economic process of production relies on the use of labour, technology, and some form of social organization of the production process that transform some inputs to outputs, most often commercialised on a market. The various labour processes that form the production process rely on inputs (raw materials or machines, labour), some of them 'used up in the course of a production cycle' (materials), and others that may be used in a more long-lasting way, in different production cycles, although they are also subject to a certain amount of depreciation because of their use (capital)⁷⁶⁸. When the production process leads to output that is 'in excess of what is needed for reproducing and replenishing the labo(u)r, tools materials, and other inputs used or used up in production', so that the next production cycle can begin under the same conditions, this is considered as a 'surplus product', as this output is available for investment in the level of production, or for capitalist consumption⁷⁶⁹.

Hence, 'surplus product' is the part of the total output that does not constitute the "necessary product" to maintain the previous level of consumption. The 'necessary product' includes the output used for the replacement of capital goods and materials used in the production process, the output used for the maintenance and replacement of the capital goods used in production and the output used so as to guarantee the consumption of producers at their customary standard of living.

The total surplus may be invested in 'labour-saving technology' or technical change, which enables a greater production of output with a given amount of labour, or in 'capital-goods saving technical change', which 'reduces the amount of capital goods or the

academics/special/center/antitrust/pdfs/Steiner_Vertical_paper.pdf.

766 See: R.L. Steiner, 'The Evolution and Applications of Dual-Stage Thinking' [2004] 49 Antitrust Bulletin 719.

767 See the analysis in I. Lianos, *The Vertical Horizontal Dichotomy in Competition Law: Some Reflections with Regard to Dual Distribution and Private Labels*, A. Ezrachi & U. Bernitz, (eds.), *Private Labels, Brands and Competition Policy* (OUP, 2009), 161.

768 See the analysis in I. Lianos, *The Vertical Horizontal Dichotomy in Competition Law: Some Reflections with Regard to Dual Distribution and Private Labels*, A. Ezrachi & U. Bernitz, (eds.), *Private Labels, Brands and Competition Policy* (OUP, 2009), 161.

769 Ibid., p. 67.

quantity of materials required to produce the total product⁷⁷⁰. The total output may also be enlarged because of an increase in the 'Intensity of labour', the producers keeping their amount of work constant, although they work harder⁷⁷¹.

How does this process of production take place in the context of the digital economy? As previously explained, data is the raw material of the digital economy. Digital platforms dominate 'Big-data driven' systems, to the extent that they constitute 'scalable data systems', data being connected through the web or other IT platforms, and the operation of various apps where information and experiences are exchanged in real time.⁷⁷² As with any other production process, which relies on inputs, including commodities, in order to produce outputs, data may be considered as the basic input in the input-output process of the digital economy. These production processes generate a surplus product, the latter being provided a value, either by a process of trade and exchange on product markets (value generated by its current use), and/or, as we will examine in more detail, on financial markets (value generated by expectations about its future use).

Lets' focus for simplicity on value generated by current use. Drawing the input-output production process for the digital economy is rather complex, as there is a great variety of digital platforms active in various fields of economic activity. What we will present is a simplified form that would, hopefully, describe the basic process of transformation of inputs into outputs occurring in the digital economy. A data-driven input-output process may be described as englobing the following steps⁷⁷³:

- *Data generation or data capture*: In this segment a huge amount of data, about consumer transactions, bio-physical phenomena and conditions, such as the weather, soil consistency, health status, are generated and ultimately captured by a variety of sources: sensors, interacting devices, Mobile apps, social media and networks, posts, blogs, eMails, scientific publications, texts, antennas, videos and other connecting sources through several different devices (e.g. smartphones, Internet of Things, the cloud, PCs etc). Consumers are attracted to these various sources of data capture by being offered products and services "for free".
- *Data storage or data-warehousing*: this data is stored quickly in elaborate storage systems (e.g. the Cloud), which ensure that the data will be maintained, being relatively easy to access, secure and amenable to verification.
- *Data processing*, which connects heterogeneous data (e.g. pictures, text, video) also establishing protocols to confirm data veracity. Various methods are applied at this level of data analysis: (i) statistical methods of correlation among big data, reduction algorithms enabling the sampling of data and other tech-

770 Ibid., 81-82.

771 Ibid., 83.

772 R. Moro Visconti, A. Larocca & M. Marconi, Big data-Driven Value Chains and Digital Platforms: from Value Co-Creation to Monetization, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2903799.

773 Ibid.

niques aiming to minimize the loss of data, (ii) data mining that aims to infer patterns from data (including clustering and regression analysis), (iii) artificial neural networks which are used for pattern recognition and image analysis, (iv) social network analysis enabling the study of social relations, social systems and networks.

- *Data sharing and communication*: this step aims to visualize and communicate or share data with the stakeholders. Various visualization tools may enable the stakeholders to interpret the data in order to establish robust causal connections, that is causal dependencies in the real world that may also lead to accurate predictions of the phenomena on which data have been collected (e.g. consumer needs and eventually future purchasing decisions of consumers, future yields on the basis of the quality of soil, weather conditions and the composition of fertilizers).
- *Data commercialization and monetization*: the process of assembling value through the creation of datasets merging different types of data (structured and unstructured), for instance integrating location data with customer data or public data with private data and of converting the intangible value of data into real value. Quite often this monetization occurs by selling this data to a group of consumers with indirect network externalities to the group of consumers whose data has been the input of the value chain, that is the first group of consumers is more willing to 'be on board' if they expect the other group of consumers to be equally popular. Data monetization requires "high technical data capabilities" (e.g. network capacities enabling the collection, storage and retrieval of data) and "high analytical capabilities" (the analytical skills needed to exploit the data). Of course there are different possibilities for monetization and various business models. Data may become an important asset for the company to protect, and merely used in its internal production process, or a valuable asset to exchange in data markets.

It is noteworthy that contrary to traditional commodity / value chains, where the final consumer sits at the end-point of the supply chain, the chain describing the entire input-output process bringing a product or service from initial conception to the consumer's hands, in data-driven markets, where unstructured data constitutes the raw material, the consumer most often (but not always, as data may not be personal data) constitutes the first input, and therefore the first segment in the value chain at the end of which sit the generators of capital, institutional investors, venture capitalists, investment banks and others that profit from the monetization of data. This inversion of the role of the consumer in the input-output process for data-driven value chains results from digitalisation, which makes possible the capture, storage, processing and analysis of data at a scale never achieved before.

In addition to competing with firms in the same relevant market and/or potential horizontal competitors at each level of the value chain, there is also vertical competition

among the firms forming part of the same value chain as to which one will be able to capture the largest share of the surplus value generated by the value chain. Depending on the governance of these value chains (see Chapter 3) some firms may be able to raise their markup prices above average costs, which will affect the part of the surplus generated by the other segments of the value chain. Referring to the competition theory of Michael Kalecki, who modeled the mark up as being a function of ‘the degree of monopoly of the firm position’⁷⁷⁴, William Milberg and Deborah Winkler note that ‘the degree of monopoly is determined by a set of environmental or institutional factors, including industrial concentration, advertising expenditure levels, the influence of labor unions [countervailing powers], and changes in the ration of fixed to variable costs’⁷⁷⁵. Firms determine their output price by marking up over average prime costs, while taking into account the output-weighted average price charged by their competitors in the industry, taking into account their degree of monopoly in the industry⁷⁷⁶. According to the same authors, a large deviation between the firm’s price and the average industry’s price shows that there is less competition among firms in the industry, this being usually associated with a high markup. Firms aim of course to limit their prime costs so as to be able to increase their mark up, if other firms in the industry do not benefit from these lower prime costs⁷⁷⁷. According to this conception, contrary to neoclassical price theory, prices are not understood as ‘signals’ of productive efficiency or inefficiency and ‘pricing decisions do not serve the role of bringing allocative efficiency’ but are rather driven by the firm’s ‘long-term objectives for investment and growth’⁷⁷⁸.

A firm may increase its mark up by three strategies: (i) raise the product price, (ii) lower input prices, and (iii) raise productivity⁷⁷⁹. The first strategy may be adopted in case the firm faces weakened horizontal competition, to the extent that the reduction of output cannot be easily substituted by actual or potential competitors present in the same market. An additional condition for the success of this strategy is that the firm faces weakened vertical competition, for instance by being able to exercise selling power downstream, without this strategy being compromised by the existence of a countervailing power downstream. This weakened vertical competition supposes the existence of vertical market power, which as we will explain may have multiple sources. The second strategy again supposes the existence of vertical power, this time upstream, as the firm should be able to exercise buyer or superior bargaining power vis-à-vis its suppliers of inputs. The third strategy involves the ability of the firm to invest in superior resources and to develop superior capabilities that would enable it to sustain its competitive advantage.

774 M. Kalecki, *Theory of Economic Dynamics*, Reprinted in J. Osiatynski (ed.), *Collective Works of Michael Kalecki*, Vol. II, (OUP, 1993), 18.

775 W. Milberg & D. Winkler, *Outsourcing Economics – Global Value Chains in Capitalist Development* (CUP, 2013), 107.

776 Ibid.

777 Ibid.

778 Ibid.

779 Ibid.

Transposing the discussion in the context of the data economy, digital platforms may theoretically increase their mark ups by raising their product price in one of the markets on which they are present (price mark up), to the extent that this is the 'money side' of the platform. There is also the subsidised side, on which often the digital platforms offer their products and services for 'free'⁷⁸⁰, although one may also conceive that mark ups could take the form of the harvesting of more personal data, and therefore represent the consequent reduction in privacy, considered in this context as a parameter of quality (a data mark up). Digital platforms may take advantage of their vertical power to lower their input prices. This, for instance, may take the form of suppressing the wages of their employees or dependent self-employed, or by taking advantage of heightened competition among suppliers and the existence of excess capacity upstream. They often achieve this by a strategy of lowering the barriers of entry in upstream markets and therefore provoking the continuous entry by new firms into the production of goods and services that serve as inputs to the outputs of the digital platform, for instance through the reduction of costs for app developers to participate to their app store⁷⁸¹. This increased competition between their suppliers increases their mark ups. Digital platforms may also rely on their large installed base of users for providing inputs for free, through for instance the collection of large scale data on queries that can be used to train the algorithms of a search engine managed by the platform, or for instance through freely provided content for media platforms (e.g. blogs for a news' aggregator, videos for a video-sharing website), which are then monetised in different ways.

Hence, in the digital economy context one needs to take a more dynamic perspective than product market competition. The strategy of the various firms in the digital economy is to capture a disproportionate amount of the surplus value created by innovation resulting from the emergence of the new industry resulting from the new technological developments. In some situations, the most effective strategy will be to opt for an 'open architecture' that nurtures complementarity through an open eco- system, should a system of 'open innovation' be the most effective way to generate higher value in this industry⁷⁸². In other situations, firms may opt for a 'walled garden approach', opting for a closed architecture with regard to firms with competing assets and capabilities entering the value chain while keeping it open for firms with complementary assets. Finally, in other circumstances, firms may opt for vertical integration; taking full control over the rents generated by the complementarities brought by the innovation, whilst maintaining the possibility to exclude or marginalize any new entrant, for instance, by denying interoperability with regard to some indispensable technological interfaces. As the focus of competition authorities switches to innovation competition, it becomes important to ensure that the players contributing to this effort are properly incentivized with regard

780 For a discussion of zero or negatively priced markets, see J.M. Newman, *Antitrust in zero-priced markets: foundations*, (2015) 164 *University of Pennsylvania Law Review* 149.

781 The emergence of the app economy has been a significant feature of recent years. The market for apps is growing, and it is estimated that between iOS, Android, and smaller platforms, apps could generate \$101 billion annually by 2020:

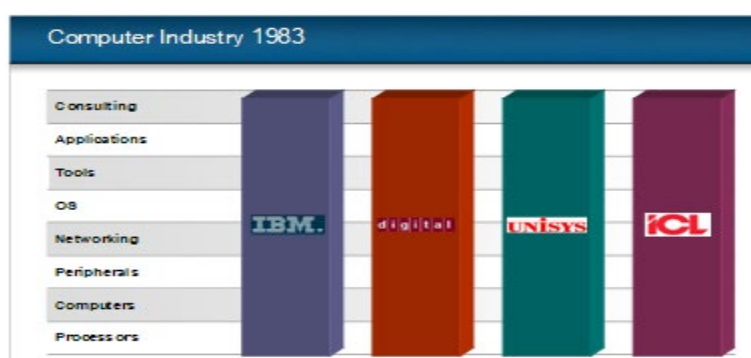
782 See, for instance, the discussion in A. Gawer, 'Bridging Differing Perspectives on Technological Platforms: Toward an Integrative Framework' (2014) 43 *Research Policy* 1239.

to their returns on their investment on innovation, in particular if this takes place in an open innovation ecosystem⁷⁸³.

It is also important to keep in mind the role of *vertical innovation competition* in challenging competitive bottlenecks resulting from the control of essential inputs by dominant players in an industry. In a digital economy marked by network effects, it is quite frequent that the position of incumbents can only be challenged by firms vertically situated in complementary markets that may also benefit from network effects, rather than competitors situated on the same relevant market. For instance, the dominant position of IBM on the computer industry until the early 1980s was not challenged by another hardware company, but by Microsoft, which was present in the complementary segment of software, and controlled the market of the operating system, an essential input for personal computers (PCs). Microsoft, with time, benefitted from important network effects, which provided it with the power to commodify hardware and thus change the computer industry architecture, thus becoming able to acquire the largest percentage of the surplus value generated by the industry, the centre of power moving from hardware to software in the mid- 1980s– 90s⁷⁸⁴.

Business studies research by Jacobides and MacDuffie has compared the process of disintegration and value migration in the computer industry, where in the process of twenty years between 1980s and 2000s the industry was transformed from single brand value chains to heterogeneous value chains, in comparison wto the relative stability of the relation between Original Equipment Manufacturers (OEMs) and complementors in the automotive industry during the same period, as both sectors witnessed a process of vertical des-integration (see Figure 4.13. for the computer industry)⁷⁸⁵.

Figure 4.13.: The des-integration of the computer industry



783 See M. Bogers et al, 'The Open Innovation Research Landscape: Established Perspectives and Emerging Themes across Different Levels of Analysis' (2017) 24(1) Industry and Innovation 8.

784 See TF Bresnahan & S Greenstein, 'Technological Competition and the Structure of the Computer Industry' (14 December 1997), available at <https://pdfs.semanticscholar.org/0675/051e52dc04ec384951242a82f95022abe71f.pdf>

785 M.G. Jacobides & J. P. MacDuffie, How to Drive Value Your Way, (2013) July-August Harvard Business Review 92.

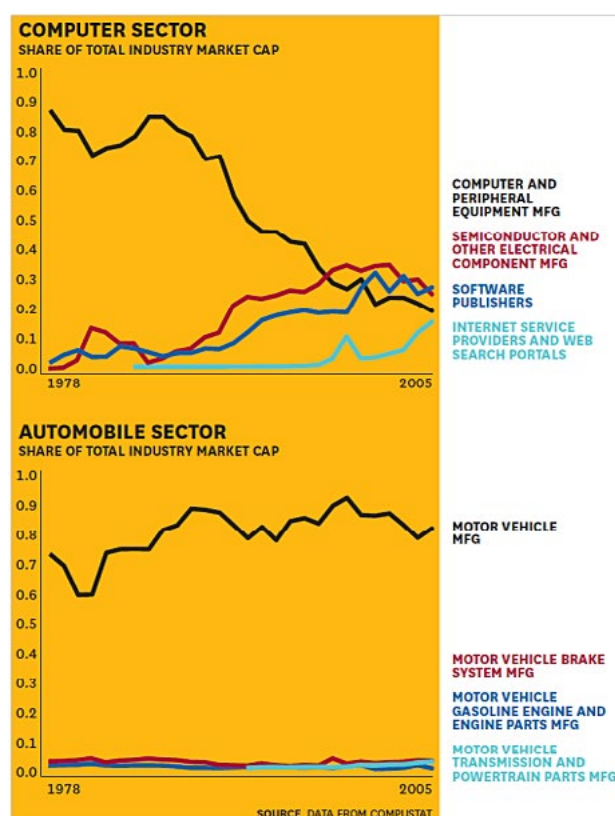


Jacobides and MacDuffie show that 'industry disaggregation' was not inevitable and that '(m)any industries characterized by intense competition and innovation – including those that are vulnerable to highly disruptive technologies – are likely to remain tightly integrated and dominated by traditional players'⁷⁸⁶. They provided the example of the automotive industry. Indeed, OEMs in the automotive industry managed to keep a constant share of their industry's total market capitalization, even if they had massively recourse to outsourcing and despite intense horizontal competition between carmakers⁷⁸⁷. The value has not 'migrated upstream (or downstream to aftermarket products and services)' but stayed with the OEMs (see Figure 4.14.)⁷⁸⁸. In contrast, in the computer industry value has shifted upstream (e.g. Intel) and downstream (e.g. Microsoft), as these companies managed to control the customer experience (see Figure 4.15.).

786 Ibid.

787 Ibid., 94.

788 Ibid.

Figures 4.13.-4.14: Value migration in the automotive and computer industry

Source: M.G. Jacobides & J. P. MacDuffie, *How to Drive Value Your Way*, (2013) July-August *Harvard Business Review* 92, 96.

Jacobides and MacDuffie explain that 'Microsoft and Intel ("Intel Inside") succeeded not only in asserting their brands over the OEMs but in convincing consumers that they were in the driving force behind the entire computing experience'⁷⁸⁹. Furthermore, they note that the vertical des-integration in the automotive industry was based on hierarchical non-modular structures and proprietary (closed) standards (e.g. each brand's own, non-compatible navigation system); OEMs in the automotive industry also kept control of most critical and differentiating assets; they were responsible for achieving end-product differentiation, supported by the brand; they had near-exclusive control over distribution through the franchised dealer model and had the responsibility for regulatory compliance and being accountable for product defects/failures (guarantor of quality)⁷⁹⁰. In contrast, computer OEMs outsourced component design and production responsibilities to suppliers, this outsourcing leading to vertical unbundling with the creation of a set of modular, open-access components⁷⁹¹. The vertical unbundling undermined the OEM's system integrator role as suppliers could standardize components across OEMs⁷⁹². The result is that the 'locus of differentiability' moved to suppliers who

789 Ibid., 96

790 Ibid.

791 Ibid.

792 Ibid.

became the guarantors of quality for their respective component⁷⁹³. Suppliers became 'bottlenecks' by taking up positions that give them control over scarce resources, allowing them to capture a bigger share of value⁷⁹⁴. The OEMs could not revert the trend as they lost the expertise within their firm's boundaries, also due to the industry's short product cycles (measured in months)⁷⁹⁵.

To the extent that, in view of its essential characteristic of futurity, the main source of value in the digital economy comes from valuation by financial markets, one may also identify the importance of attracting capital as a dimension of competition.

This dimension is often ignored by research putting forward the view that the competition game is transformed by the emergence of intensive oligopolistic competition as the various large digital platforms (Big Tech) move outside their core business activity in adjacent or overlapping fields of activity on which they become strong rivals (see Table 4.1.)⁷⁹⁶.

Table 4.1.: Competition among digital platforms⁷⁹⁷

Product	AMZN	AAPL	GOOG	FB	MSFT
advertising platforms	✓		✓	✓	✓
artificial intelligence	✓	✓	✓	✓	✓
browsers	✓	✓	✓		✓
cloud services	✓		✓		✓
digital assistants	✓	✓	✓	✓	✓
ebooks	✓	✓	✓		
email and messaging		✓	✓	✓	✓
games	✓	✓	✓	✓	✓
general purpose search engines			✓		✓
home delivery services	✓		✓		
maps		✓	✓		✓
office tools		✓	✓		✓
operating systems	✓	✓	✓		✓
smartphones	✓	✓	✓		✓
social networks			✓	✓	
special purpose search engines	✓	✓	✓	✓	✓
streaming video	✓		✓	✓	
video and music distribution	✓	✓	✓		
video conferencing		✓	✓	✓	✓

Source: H.R. Varian, *Use and Abuse of Network Effects* (September 17, 2017). Available at SSRN: <https://ssrn.com/abstract=3215488> or <http://dx.doi.org/10.2139/ssrn.3215488>

793 Ibid.

794 Ibid.

795 Ibid.

796 See, H.R. Varian, *Use and Abuse of Network Effects* (September 17, 2017). Available at SSRN: <https://ssrn.com/abstract=3215488> or <http://dx.doi.org/10.2139/ssrn.3215488> ; For a similar argument, see N. Petit, *Technology Giants, the Moligopoly Hypothesis and Holistic Competition: A Primer* (October 20, 2016). Available at SSRN: <https://ssrn.com/abstract=2856502> or <http://dx.doi.org/10.2139/ssrn.2856502> (who includes a comparable table showing the overlaps between the various digital platforms).

797 AMZN: Amazon, AAPL: Apple, GOOG: Alphabet (Google), FB: Facebook, MSFT: Microsoft.

The argument is that it is indifferent if digital platforms dominate specific relevant markets, as in reality they compete with each other, by offering a mix of products and services, and thus forming competing conglomerates. While recognizing the superior position held by each digital platform on its core business activity they are subject to a variety of competitive pressures exerted across industries by other technology or non-technology firms. The top 3 competitors that each of these Big Tech companies recognize as their rivals in their financial reports and other financial databases are the other Big Tech, even if these are not present in their core market⁷⁹⁸. The argument goes that the dynamic nature of competition and disruptive innovation in technology markets, and the risk of negative feedback loops that would generate a 'death spiral' and may rapidly erase any dominance these firms were able to acquire, generates uncertainty that pushes these digital platforms to expand their output (in their core business activity as well as in adjacent markets) and behave as competing oligopolies, hoping to 'maintain the ability to "hop" to the next (disruptive) "dominant design"'⁷⁹⁹. Competition takes place in various dimensions, beyond product and service markets, in particular entrepreneurial assets but more significantly 'non consumption'⁸⁰⁰.

Petit coins the term 'moligopoly' merging the terms 'monopoly' and 'oligopoly' to illustrate the nature of the competitive game, which is that the (moligopoly) firm 'engages into competition against the non-consumption in search of new and low end market footholds.'⁸⁰¹ Like the story of Don Quixote tilting at windmills, which he takes for giants, this battle for competitive survival looks like it will end in the same way, Don Quixote knocked of his horse... This type of head to head, disruptive competition, however, almost never concerns the core markets where the technology firms holds its dominant position. But the lack of competition in these areas of core activity should, according to Petit, not be a matter for concern, if the undertakings in question are 'moligopolies' and therefore are subject to a 'multidimensional degree of moligopoly competition'⁸⁰². This 'moligopoly screen' is sufficient to absolve any indication of likely anticompetitive effects on a relevant market, if firms-related variables provide the impression (or is it certitude?) that the firm is 'worthy' of the indulgence of finding no competition law violation, because (i) it is a conglomerate, (ii) it is open to experimentation, (iii) it is committed to patient capital, or (iv) is 'a platform leader, in other words...it serves as the foundation of an ecosystem of innovative companies'⁸⁰³. The paper builds this argument on the empirical finding that, contrary to monopolies, moligopolies 'channel sizeable amounts of resources into research and development' and invest in human resources (in particular entrepreneurship).

Despite its reference to a multidimensional framework for assessing competition and the criticism to the 'crude tool' of market definition, which we share, there are important

798 Ibid., 7-15.

799 Ibid., 39.

800 Ibid., 47.

801 Ibid., 4.

802 Ibid., 65.

803 Ibid., 65-66.

problems with the overall argument of the paper and the ‘moligopoly screen’. First, Petit while criticising the traditional understanding of antitrust, relies on the simple economics of market definition in claiming that moligopolies increase production (and therefore output), which is something that cannot be wrong in his view, in particular as they also distribute this output ‘for free’. This may be true with regard to one side of the platform (e.g. search), but is not always true with regard to the other side of the platform (predictions, advertising), which is conveniently ignored, the paper falling in the single relevant market phalacy. In fact, there may be significant consumer harm in increasing the harvesting and exploitation of personal data, not only because consumers may be charged higher prices, than what would have been the case if they could not be targeted, but also because of the risks of manipulation and lessening of privacy. Second, the investment in R&D in these dynamic industries is certainly a positive feature, but as we have previously explained its level is lower than in other industries and is in no sense remarkable for a sector that has a high profitability and incurs less fixed costs and probably risks of failure than the pharmaceutical industry when launching a new molecule. Third, although the paper makes references to the fact that ‘moligopolies’ retain their earnings and do not distribute, this is not supported by the facts, which show that the top Big Tech distribute more to shareholders or to their management than what they invest in R&D (see Section 4.3.1.2.3.). The paper does not engage with the financialisation of US based digital platforms, which to a certain extent influences their competitive strategy, and may explain their development (and the formation of conglomerates) according to the ‘expand and distribute’ model. Fourthly, the paper assumes that ‘moligopolies’ are the sole source of R&D and innovation, and on the basis of this assumption, gives a *carte blanche* to them for regulating their ecosystems as they seem fit, suppressing innovative startups and reducing opportunities for vertical (innovation) competition. Fifthly, and most importantly, the paper does not engage in a true multi-dimensional analysis of competition, in particular by integrating the dominant characteristic of financialised capitalism, futurity and its role in competitive strategies. As we explained in 4.3.1.3., one needs to understand that competitive strategies do not only take place in product or service markets, or in fictitious markets for ‘entrepreneurship assets’ and ‘non consumption’, but also in financial markets where market evaluation of companies’ stocks because of the perception that they control a valuable bottleneck that may provide them with a sustainable competitive advantage and abnormal profits in the medium to long-term are crucial drivers for strategic action by the management. Certainly, the process of ‘convergence’⁸⁰⁴ of the IT, communications and AI may unleash some intensified degree of potential competition (and produce overlaps generating rivalry), but this remains for the time being limited. Despite the important convergence between the communications and IT industries in the last two decades, at the level of the core network layer used, with packet switched technology and LTE used for both IT and communications, each industry has kept its own service layer, its own private governance

804 Competition Commission of South Africa, [Data Market Inquiry Provisional Findings and Recommendations](#) (April 24, 2019), 180, notes ‘the convergence of various types of technology onto the same platform (e.g. video, voice, data) or the convergence of fixed and mobile devices (e.g. hybrid devices)’.

architecture and business models⁸⁰⁵, and is subject to different regulatory regimes with regard to the harvesting of data⁸⁰⁶. Hence, expecting competition clashes to occur in the short-term, this justifying a laissez-faire regime, seems ambitiously optimistic.

4.3.4. Sources of sustainable competitive advantage in the digital economy

There are various factors driving competitive advantage in the digital economy. In view of the high costs for the development of technologies and the need for these to inter-operate so as to provide the user a seamless experience, and the central role of 'system interconnectors', there is a high intensity of interaction and cooperation, as well as competition, between the different economic actors. Hence, the quest for competitive advantage takes more complex forms and the strategies are often quite elaborate, combining elements of cooperation and elements of competition (co-opetition⁸⁰⁷). We explore in great detail the sources of sustainable competitive advantage in the digital economy in Annex 2.

4.4. Moving beyond traditional relevant markets

The Internet era gave rise to many online intermediaries and digital platforms controlling and orchestrating value-generating ecosystems that not only offer products and online services but also provide the infrastructure and tools on which other platform businesses are built. At the same time, the development of Big Data and multi-sided markets strategies have raised questions and cast doubt on the sole focus of the assessment undertaken by competition law concerning the definition of the relevant market. How could one proceed to delineate a market in a world in which the possible personalisation of production means that consumers can themselves become the designers of

805 Compare the harvesting of personal data by Facebook and Google so that they offer social media and search engine services 'for free', with the approach used by AT&T which imposed a privacy surcharge in its GigaPower gigabit-speed broadband Internet service, offering consumers an option to prevent AT&T from collecting vast amounts of data about its users' browsing habits for advertising and other purposes: see Elizabeth Dwoskin & Thomas Gryta, AT&T Offers Data Privacy—for a Price, available at <https://blogs.wsj.com/digits/2015/02/18/att-offers-data-privacy-for-a-price/>. The programme was later abandoned: see <https://www.fool.com/investing/2016/10/03/att-drops-its-controversial-extra-charge-for-privacy.aspx>.

806 An interesting example concerns the regime regulating the harvesting of personal data. While social networks and search engines are free to harvest all sorts of data, although now in conformity to the GDPR rules, this may not be possible for mobile operators which, [until Congress adopted resolutions to repeal the broadband privacy regulations introduced in 2016 to reverse the Broadband Privacy Rule, a regulation from the FCC that made some inconvenient changes to the ways internet providers can collect and sell the data they collect on consumers], could not harvest data from the websites visited, emails and other texts and with some limitations could only collect location data. Note however that in March 2019, the FTC issued orders to seven U.S. Internet broadband providers seeking information to examine how broadband companies collect, retain, use, and disclose information about consumers and their devices: available at https://www.ftc.gov/system/files/attachments/press-releases/ftc-seeks-examine-privacy-practices-broadband-providers/isp_privacy_model_order.pdf.

807 A Brandenburger and BJ Nalebuff, Co-opetition (Currency Doubleday, 1997). Professors Brandenburger's and Nalebuff's concept of 'co-opetition' may characterize the future of competitive interactions in the economy, where business become more competitive by cooperating with each other and developing unique capabilities that add value and complement those of their competitors.

the individually-customised products they consume with the products being produced by 3-D printing and robots? Will firms be competing mainly on the market for personal information? What will serve as the raw material on which personalised production will be based? Competition law analysis needs to consider, when assessing competitive constraints, the type of competition taking place in the specific 'field'. We consider that the current field of relevant market is too simplistic and will have to be complemented by additional fields of assessment of the competitive game.

4.4.1. Multi-sided markets and 'transaction platforms'

Platforms that operate in multi-sided (often two-sided) markets facilitate the interaction between two groups of customers, where members on each side are more willing to 'be on board' if they expect the other side to be equally popular (matching platforms). Classic examples are:

- credit cards, where users want a card that is accepted ubiquitously, and merchants do not want to lose business by not offering to their client the convenience of being able to pay with their credit card;
- online marketplaces (e.g., auction sites): where both sellers and buyers are keen to trade in a tick market with plenty of choice;
- game consoles (and App [application] stores): where users want a variety of compatible games (Apps) and game (Apps) developers do not want to waste their energies developing a game (App) for a proprietary platform unless it is expected to attract many potential clients.

What these examples share is the fact that members from each side join the platform to execute an interaction (often carry out a transaction) with a member from the other side – i.e., the platform is a match-maker. Hence, a decision of a member to join the platform on side A will benefit members on the other side B; and vice versa, in the sense that to the extent that side B becomes more attractive (thanks to the new affiliation on side A) this will in return increase the utility of joining side A in the first place.

In economic jargon these cross-sided dynamics are called 'indirect network externalities', as opposed to 'direct network externalities' where there is only one side and users benefit if other users join the network – e.g., mobile telephony. The term 'externality' refers to the idea that, when an individual user decides to join in, he/she will normally fail to appreciate that his/her decision will benefit others (either on the same side under direct network externalities, or on the other side as with multi-sided platforms).

Hence, the theory goes, individual adaptations should be encouraged through some form of subsidisation in order to achieve the optimal critical mass on the network. Accordingly, the role of the two-sided platform is to 'internalise' these externalities, by solving the 'chicken-and-egg' problem that typically besets such platforms thus managing to get 'both sides on board'. This is typically done by subsidising the side that at first brings

the strongest benefits to the other side, e.g., women's entrance in a night club, users' access to a property website (whilst estate agents are charged to list their properties). Therefore, the fees charged on both sides may not reflect the underlying costs incurred for each side.⁸⁰⁸ Indeed, one side might not be charged at all, or even there could be negative prices on one side to bring them on board – e.g., a free voucher.⁸⁰⁹

These peculiarities make it tricky to implement the SSNIP test. To impose a SSNIP only on one side, would ignore the fact that a reduction in membership (i.e., following an increase in the membership fee) or intensity of usage (i.e., due to an increase in the transaction fee) on one side will cause a similar knock-on effect on the other side and so on. That is to say, indirect network externalities provide a constraint on the ability to impose a SSNIP on one side only. Therefore, it is argued that the hypothetical monopolist should be required to increase the overall *level* of prices, whilst allowing the platform to adjust the *structure* of prices across each side in order to minimise the negative feedback loop thereof.⁸¹⁰ Incidentally, the interrelatedness between the two sides strongly points towards a two-sided market definition, whereby substitutability is based on the same idea of match-making between the two sides.⁸¹¹

The analysis of two-sided markets/platforms presented so far is uncontroversial, in the sense that there is little doubt that the examples presented above fit the concept. However, there is a tendency to stretch the definition of two-sided markets, as by doing so it is possible to argue that antitrust intervention is unwarranted since the ability to exercise market power is naturally constrained by the kind of negative feedback loops (fuelled by indirect network externalities) described above.⁸¹²

In particular, media markets are regularly considered to be two-sided markets *sui generis*, where on one side there is the audience (readers/listeners/viewers) and on the other side there are advertisers seeking to reach that audience. However, media markets definitely constitute an outlier in terms of their presupposed two-sidedness for at least three reasons:⁸¹³

808 There can two types of fees: a) membership fee to just become an affiliate; and b) transaction fee, levied each time an interaction with a member of the other side is executed.

809 This is typically the case where the members of one side are promiscuous, in the sense that they can use multiple platforms, often at the same time (so-called, 'multi-homing').

810 For a discussion on this topic, see L. Filistrucchi, D. Geradin, E. van Damme and P. Affeldt (2013), 'Market Definition in Two-Sided Markets: Theory and Practice', (2014) 10(2) Journal of Competition Law & Economics 293.

811 This does not mean that only platforms can be seen as potential substitutes. For example, transactions do not have to be intermediated, as with cash payments in place of the use of credit cards. For a discussion see, Chapter 4.

812 In contrast, though, two-sided markets may be subject to 'winners-take-all' dynamics, where the incumbent platform becomes the de-facto place to be for users on both sides. Therefore, the chances of rival platforms being able to build their own critical mass are low due to an insurmountable 'chicken-and-egg' problem. The role of network externalities as potential barrier to entry and expansion is discussed in the next section.

813 For a detailed discussion, see G. Luchetta, 'Is the Google Platform a Two-Sided Market?', (2013) 10(1) Journal of Competition Law & Economics 185.

- indirect network externalities are only one directional, rather than reciprocal: advertisers benefit from larger audiences, but not vice versa. Indeed, ads normally constitute a nuisance for the audience;⁸¹⁴
- the two sides do not interact on the platform. It is true that the aim of advertisers is to ultimately trigger a transaction, but none of this is hosted by the platform – i.e., the primary purpose for the audience to affiliate the media outfit is to access content, whilst tolerating advertisers' attempt to build brand awareness;
- for media firms two-sidedness is an optional business model, not a necessity – i.e., their core business is not about match-making in nature. For example, a TV operator can either adopt a free-to-air business model – where content is free for the audience whilst advertisers pay to have their ads aired – or a Pay-TV business model – where the audience has to pay to view content of their choice, often without the nuisance of advertising.⁸¹⁵

By the same token, it is debatable whether social networks, such as Facebook and Twitter, and search engines, such as Google search, are truly two-sided platforms. In both cases usage is driven by the desire to interact, respectively, with other users (i.e., direct network externalities), or finding the right content on the web for free, whilst tolerating the fact that their data are used by the host operator to allow advertisers to target them with their impressions (i.e., the externality is one-directional rather than reciprocal).

Accordingly, in all these (*sui generis*) cases, to impose a SSNIP on advertisers would hardly set off the kind of negative feedback loop described above. The ability to exercise market power on one side is not restrained by the need to keep both sides on board, since the audience would not be bothered by the fact that there is less advertising on the platform (i.e., as a consequence of an increase in price). It is true that the ability to offer, potentially for free, good quality content and online services, such as search and social networking, relies on the monetisation of audience's attention, but the audience decision as to of which services to use is not affected by an expectation that the other side will be popular.

That is to say, there is no 'chicken-and-egg' problem, in that it is the quality of the content provided (for free) that determines audience's affiliation, and advertisers do not determine the quality, they only exploit it (at a price) in order to reach their target audience.⁸¹⁶ As a final example, let's consider price comparison sites, which are free to con-

814 There are exceptions, of course, as with readers of fashion/glamour magazines and with classified ads. In the latter case, though, advertisers have radically deserted media outfits and, nowadays, normally prefer to reach the other side by posting their ads on dedicated two-sided platforms such as gum-tree, eBay and many others.

815 It is true, of course, that a Pay-TV business model would not be viable without premium content such as sports and recent blockbusters, but the choice of what type of content to broadcast is endogenous, in the sense that an FTA TV operator could over-time decide to switch to a Pay-TV business model.

816 One peculiar feature that distinguishes media business from social networking and web-searching is that in the latter case the quality of the content is determined in a positive way by the number of users (i.e., positive direct network externalities). For example, Google's search engine gets better and better thanks to the cumulated intelligence gathered as to what constitute a good search result. Hence, the importance to maintain high volume of traffic.

sult for user whereas sellers are charged, typically, a commission on a per-click basis. On the one hand, users look for a comparison that is both accurate and covers the entire market (e.g., car insurance quotes); on the other hand, sellers are in two minds, as they want to be listed on popular websites but are aware that accurate comparison spurs pricing rivalry.

Usually, though, sellers have no choice as they know that the website may list their offer in any case. This is the key intuition as to why price comparison sites are not two-sided platform in a strict sense: users' decision to consult is based on the expectation of a comprehensive and accurate comparison, regardless of whether sellers accept to be charged for sponsored links or on a click-through basis. Indeed, the fact that price comparison websites are financially reliant on sellers' commission fees makes users uneasy, if not suspicious; and this is notwithstanding the fact that users would hardly pay for a comparison that is financially independent.⁸¹⁷

In conclusion, whilst it is important to be aware of the type of unidirectional externality that characterises these types of (*sui generis*) platforms, a one-sided approach to market definition may nevertheless still be appropriate.⁸¹⁸

This is still the approach followed by the EU Courts, which usually address the issue of multi- sidedness not when they determine the competitive constraints directly faced by the undertaking in question in defining the appropriate antitrust relevant market that will serve as the starting point for competition assessment, but when determining the existence of a restriction on competition, since the two- sidedness is part and parcel of the overall economic context that needs to be taken into account by the competition decision- maker before concluding on the existence of a restriction of competition by object or by effect⁸¹⁹. In contrast, in a five to four judgment in *Ohio v American Express Co*, drafted by Justice Thomas, the majority of the US Supreme Court highlighted the fact that some two- sided platforms, such as credit card operators like American Express, facilitate a single, simultaneous transaction between merchants and cardholders and thus supply 'only one product', namely transactions, which are jointly consumed by the card- holder and the merchant⁸²⁰. The Supreme Court stressed the importance of evaluating *both* sides of a two- sided transaction platform in order to accurately assess competition and thus analysed the two- sided market for credit-card transactions as a whole, at least for 'transaction platforms'⁸²¹.

817 For a detailed discussion, see H.C. Gamper, *How Can Internet Comparison Sites Work Optimally for Consumers?*, (2012) 35 *Journal of Consumer Policy* 333-353.

818 See L. Filistrucchi, D. Geradin, E. van Damme and P. Affeldt (2013), 'Market Definition in Two-Sided Markets: Theory and Practice', (2014) 10(2) *Journal of Competition Law & Economics* 293. For some examples of cases in the UK where multi-sided markets were considered, see *Global Radio/ GMG* (CC, 2013); *WRI/Hostelbookers.com* (ME/6062/2013); *BSkyB/ Virgin Media* (ME/4568/2010); *Capital Shopping Centres/Trafford* (ME/4903/2011).

819 See the CJEU's approach in *Case C- 67/ 13 P, Groupement des cartes bancaires (CB) v Commission*, ECLI:EU:C:2014:2204, paras 76- 81.

820 *Ohio v American Express Co*, 585 US _ (2018).

821 According to the majority Opinion, the key feature of transaction platforms is that they cannot make a sale to one side of the platform without simultaneously making a sale to the other. This approach was criticized by the minority of the Supreme Court in an Opinion drafted by Justice Breyer, who considered that the relationship between merchant- re-

Box 4.4. Market Definition and the digital economy – A BRICS perspective

BR Market definition is a challenging task in the digital economy. In digital markets there are some particularities that should be taken into consideration, which are not explicitly established by any guide or legislation, but that have been revealed by the academic literature and examined in past cases analysed by CADE. In general, CADE holds that the Brazilian legal framework provides enough flexibility to adapt the existing concepts and tools. Therefore, the current toolkit has been suitable to analyse the cases involving digital market that CADE has investigated so far. Nonetheless, CADE also recognises that due to the rapid pace of innovation and transformation of the digital economy, legal and economic concepts employed by competition policy need to be constantly studied and reviewed. In that sense, CADE is developing studies to identify whether the current competition framework and tools of enforcement should be updated and adapted.

RU The ‘fifth antimonopoly package’ proposes to introduce the data ownership as a criteria for market definition.

ZA How markets are defined for the purpose of determining market shares and market power is not given specific expression in the Competition Act and is therefore subject to the application of economic techniques to the available evidence. These economic techniques include the necessary tools for defining digital markets such as two-sided assessments. As such, the current legislation is adequate for purposes of market definition. Problems may arise in instances of potential entry because authorities normally base their views on information on existing competitors. However, in digital markets, there is a significant role played by disruptive technologies such that the market may not always be limited to the relative positions of competitors at a given point in time, but competitors coming from outside are also relevant. For example, Uber came from outside the metered-taxi market to disrupt the metered taxi business when nobody was expecting it.

Source: BRICS NCAs Questionnaire

4.4.2. From ‘Big’ and ‘Smart’ Data and ‘matching’ platforms to prediction platforms

4.4.2.1. Data and Big/Smart Data markets

Competition authorities and the largest body of scholarly work on digital platforms has focused on competition law issues related to the harvesting and possession of data

lated card services and shopper- related card services is primarily that of complements, not substitutes, and thus the two could not form part of the same product market. Justice Breyer rejected the concept of ‘transaction platform’, *inter alia*, because of the difficulty to determine its limiting principles and to distinguish clearly these platforms from other platforms in which the two sides should be considered separately. The approach of the minority of the US Supreme Court seems close to that adopted by the CJEU in *Cartes Bancaires*.

from digital platforms, in particular access to personal and/or non-personal big data issues. The concept of ‘big data’ is usually employed to refer to gigantic digital datasets, which are often held by corporations, governments and other large organisations, and which are extensively analysed using computer algorithms.⁸²² It is thought that access to data may become a source of market power: according to a joint report by the German and the French competition authorities, ‘(p)rovided that access to a large volume or variety of data is important in ensuring competitiveness on the market (which is a market-specific question), the collection of data may result in entry barriers when new entrants are unable either to collect the data or to buy access to the same kind of data, in terms of volume and/or variety, as established companies’⁸²³. This data may be either provided voluntarily by the consumer or prospective customers of a company in the context of existing transactions or attempts to enter into these transactions, it may be observed or inferred and aggregated by the digital platform in the context of an interaction with a (prospective) customer, in these cases the undertaking having control on the collection of data as it is involved in the relationship with the (prospective) customer (thus constituting a ‘first party data’ source). The fact that some undertakings benefit from a considerable market share in terms of number of users leads them to also benefit from a large share in the harvesting of data. Furthermore, undertakings may also use ‘third-party data’, that is ‘data collected by another entity’, although this possibility may be limited by some regulatory restrictions on the transfer of data between first and second aggregators (i.e. data protection requirements on consent)⁸²⁴. In these cases, it is possible that superior access to data could provide a competitive advantage and could increase barriers to entry isolating ‘established competitors from smaller rivals and potential entrants, thereby allowing them to increase their prices’⁸²⁵. Consequently, a lot of the discussion has focused on ways to reinforce inter-platform competition by promoting access to data and data portability. We will discuss these efforts in detail in subsequent Chapters of this report.

With regard to delineating relevant markets for the sale or purchase of data, one needs to distinguish between situations in which the data operates as an input for a product and is not traded or sold to third parties, in which case it would be difficult to define a pure data market and the competition authorities proceed to a ‘market determination based on the services provided’⁸²⁶, and situations in which data is available to be traded

822 ‘Aspects of ‘big data’ that are often mentioned are large amounts of different types of data, produced at high speed from multiple sources, whose handling and analysis require new and more powerful processors and algorithms’: Autorité de la Concurrence & Bundeskartellamt, Competition Law and Data (May 16, 2016), 4. ‘Big data’ is often characterized by the various ‘V’s’, which go from four, according to certain descriptions, Velocity, Variety and Volume, Value (to be extracted) to six, according to others adding Veracity and Validation.

823 Autorité de la Concurrence & Bundeskartellamt, Competition Law and Data (May 16, 2016), available at https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.pdf?__blob=publicationFile&v=2, 11.

824 Ibid., 12.

825 Ibid., 13.

826 For a discussion, see I. Graef, Market Definition and Market Power in Data: The Case of Online Platforms, (2015) 38(4) World Competition 473, 491 (discussing the Facebook/WhatsApp acquisition, where the Commission did not define a

or sold to third parties, in which case it would be possible to define a market for the provision of data, as a 'specialised asset'⁸²⁷. However, the last option is usually fraught with difficulties. For instance, in the recent *Apple/Shazam* merger, the European Commission found that both parties were active in the licensing of music data (in particular music charts data), among other relevant product markets. The Commission explored the degree of substitutability (or complementarity) between the parties' different data products, in particular their music data charts. The substitutability of the music data charts of Apple and Shazam was debated as there were differences between them that made them complementary rather than substitutable: for instance, Shazam's music charts could give an indication of the popularity of certain music tracks, as well as of future music trends, while Apple's charts reflected Apple's estimates of its own music sales and/or usage patterns⁸²⁸. The Commission did not find it necessary to determine this substitutability question as this did not affect the competition assessment. This did not refer to personal data, as the Commission did not find a horizontal overlap in relation to the Parties' user behavioural data, which was not in any case licensed by the Parties to third parties⁸²⁹.

When it came to determine the market shares of the parties in this market, the Commission was not able to compile market shares and found that there was a large number of sources of music data⁸³⁰. Interestingly, the parties contested the definition of a separate relevant market for music chart data, arguing that they were instead an 'ancillary feature of the core business of music streaming or voice recognition'⁸³¹. They also argued that should a separate data market be defined, this would have existed 'for the collection of data on individuals' music tastes and the analytics of such data' and should not have been limited to data collected in the digital music industry, but should have covered 'all data compiled relating to music preferences, including data gathered by undertakings active in the wider field of online social networks' (i.e. LinkedIn, Facebook, WhatsApp or Google) collecting the same type of data on their users. This argument was not accepted by the Commission, which preferred to define a separate market for music charts, although it did accept that there were multiple sources for such data. Interestingly, the Commission considered that, regardless of whether it constituted a relevant product market, access to this data could constitute a possible competitive advantage for the new entity as it could have helped it 'to improve existing functionalities, or offer additional functionalities'⁸³². This assessment formed part of the analysis of the non-horizontal unilateral effects of the transaction resulting from the possible foreclosure of

data market as none of the parties was trading or selling the data to third parties).

827 P.J. Harbour and T.I. Koslov, Section 2 In *A Web2.0 World: An Expanded Vision of Relevant Product Markets*, (2010) 76 Antitrust L.J. 769-797; I. Graef, *Market Definition and Market Power in Data: The Case of Online Platforms*, (2015) 38(4) *World Competition* 473, 491; D.D. Sokol & R. Comerford, *Antitrust and Regulating Big Data*, (2016) 23(5) *George Mason L Rev* 1129, 1155-1156.

828 CASE M.8788 – APPLE / SHAZAM (2018), para. 123.

829 CASE M.8788 – APPLE / SHAZAM (2018), para. 119.

830 CASE M.8788 – APPLE / SHAZAM (2018), para. 167.

831 CASE M.8788 – APPLE / SHAZAM (2018), para. 120.

832 CASE M.8788 – APPLE / SHAZAM (2018), paras 313-329.

competing providers of digital music streaming apps, to the extent that user data is an important input for competing providers of digital music streaming apps⁸³³.

Box 4.5. The CADE analysis of big data

In 2016, CADE analysed a case in which Brazil's leading banks formed a joint venture for credit scoring. Credit scoring companies are multi-sided markets with strong network effects. Financial institutions are the main suppliers of inputs (information about users' financial transactions) to credit bureaux, while they are also the main consumers of bureaux's products (credit scores). Thus, CADE was concerned the operation would lead to vertical integration. In this case, CADE analysed whether data (information about consumers) might act as an entry barrier. When data is also a source of market power, a dominant platform can leverage its userbase in order to prevent potential competitors to enter the market, which might lead to market foreclosure. The SG and the Reporting Commissioner highlighted the risks of foreclosure in both the markets of positive and negative credit scoring, due to the great number of consumers' data held by the proposing banks. Accordingly, one of the remedies agreed by the parties was the commitment that the banks would continue providing data to all credit bureaux, with no discrimination or provision of favourable treatment to their own bureau.

Source: BRICS NCAs Questionnaire

The activity of digital platforms relies on the harvesting and processing of different types of data, which may constitute, under certain circumstances a source of market power or dominance. In particular user data may be a source of increasing returns, due to either economies of scale and scope or learning effects to the extent that more user data may enable the digital platforms to train better the algorithms underlying their services, in particular as platforms present in several markets may harvest data from different markets, thus forming a 'richer model of consumer (behaviour)' (economies of scope)⁸³⁴. The possession or control of data for which there is no good substitute may also enable a digital platform to raise the costs of its rival platforms or make it more difficult for them to compete in advertising markets, by adopting exclusionary conduct, such as refusals to deal, exclusive contracts with third party data brokers or aggregators who could have been an alternative source of data for their rivals, or erecting barriers to data portability for its users⁸³⁵. Digital platforms may also adopt predatory conduct limiting the ability of competing platforms to reach a critical mass of users that would enable them to benefit from network effects⁸³⁶. This, for instance, may occur if the platform uses as bait to attract users free products or below AVC prices in one side of the platform (the 'honey'). The harvesting and control of data may also enable the development of sophisticated pricing practices, in particular price discrimination, or of strategies in-

833 CASE M.8788 – APPLE / SHAZAM (2018), Section 8.4.2.2.

834 M. L. Katz, Multisided Platforms, Big Data, and a Little Antitrust Policy, (2019) Review of Industrial Organization, available online at <https://doi.org/10.1007/s11151-019-09683-9>

835 Ibid.

836 Ibid.

creasing switching costs for consumers giving rise to lock-in effects of the consumers to specific platforms⁸³⁷. Access to data may also increase information asymmetry between undertakings or between undertakings and consumers, thus enabling the undertakings (or digital platforms) with privileged access to reinforce their bargaining power vis-à-vis other undertakings or the consumers, with the potential to limit consumer surplus.

However, it may be also argued that, in a lot of cases, data presents some of the characteristics of a public good, to the extent that their consumption is non-rivalrous, and there may also be different sources of data available, in particular if data is traded or sold on data markets. The availability of data in the digital economy, and the multiplication of data harvesting devices, in particular with the development of the Internet of Things, is put forward as an argument to challenge the conception of data as posing a barrier to entry or as forming an essential facility⁸³⁸. A lot of user data is presumably available through data brokers (third parties), such as Acxiom, Experian, Epsilon, CoreLogic, Datalogix, inome, PeekYou, Exactis, Recorded Future, among the more than 4000 data brokering companies worldwide. Contrary to other digital intermediaries, these do not provide any products or services to the consumer, their core business being to harvest data and to trade/sell it to other firms⁸³⁹. Digital intermediaries or suppliers, such as Oracle, Thomson Reuters, IBM, Nielson Holdings Plc, Bloomberg, Moody's, Alibaba Wolters Kluwer etc., may also be present in the data brokerage market, and sell data in their possession. Data brokers detain considerable information. For instance, Acxiom, one of the major data brokers, provided up to 10000 attributes on 2,5 billion of consumers in 2018⁸⁴⁰. However, it has also been noted that this data is kept in 'silos', according to the sector of activity (e.g. Experian and Epsilon is focusing on data that are relevant for marketing), the companies having mostly a vertical focus usually not addressing the full range of the data transactions⁸⁴¹. This data, which can be on consumer purchase and transaction information, consumers' available methods of payment, health conditions, social media activity is harvested through mainly 'five major avenues: government records and other public data, purchase or license from other data collectors, cooperative

837 Ibid.

838 See the criticisms of, inter alia, C. Tucker, Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility (2019) Review of Industrial Organization <https://doi.org/10.1007/s11151-019-09693-7> (noting that data are on-rival and widely available' and that 'large shifts in supply infrastructure have rendered the tools for gathering digital data commonplace'. She concludes that 'the relationship between digital data and network effects is contextual and needs to be evaluated on a case-by-case basis' and that 'data alone are often not very valuable'))

839 On this industry, see the following reports: US Senate, Committee on Commerce, Science and Transportation, A Review of the Data Broker Industry: Collection, Use and Sale of Consumer Data for Marketing Purposes (2013), available at https://www.commerce.senate.gov/public/_cache/files/0d2b3642-6221-4888-a631-08f2f255b577/AE5D72CBE7F44F5BFC846BECE22C875B.12.18.13-senate-commerce-committee-report-on-data-broker-industry.pdf ; US FTC, Data Brokers: A Call for Transparency and Accountability (May 2014), available at <https://www.ftc.gov/system/files/documents/reports/data-brokers-call-transparency-accountability-report-federal-trade-commission-may-2014/140527databrokerreport.pdf> .

840 See, <https://www.fastcompany.com/90310803/here-are-the-data-brokers-quietly-buying-and-selling-your-personal-information> .

841 See, https://f69aa27b9b6c6702e27b-fbfddeddb5f7166a1729dfea28599a63.ssl.cf3.rackcdn.com/raw_54206_15080ceb05f4b9ba9be630b4ccb74c06_qDatum-Presentation-Investors14-PDF.pdf .

agreements with other companies, self-report by consumers, often through surveys, questionnaires, and sweepstakes, and social media⁸⁴². These data brokers use this data to create products and services providing customers with data that has varying degrees of specificity about individual consumers, either on the basis of ‘actual’ elements of information, or on the basis of ‘modeled’ data that result ‘from drawing inferences about consumer characteristics or predicted behavior based on actual data’⁸⁴³.

The issues raised by the privileged or unique access of some digital platforms to valuable data raise the possibility of competition law intervention in order to limit the likelihood of exclusionary practices.

4.4.2.2. Attention markets

Emphasising control over data and defining separate data markets may however overlook the real competitive game in the platform economy. Data, as such, may not be the core aspect of the business model, in particular of the leading digital predictive platforms relying on an advertisement-based model (i.e. Google, Facebook).

These platforms aim to attract and hold the attention of the users, not only in order to harvest data, but also more generally in order to influence their choice and manipulate their preferences through a some (insidious) process of choice architecture. In the classic two-sided model of digital platforms, these platforms are thought as matching, on one side, advertisers (the money side) and users (on the subsidised side). Data harvesting is indispensable for this process of matching to work. However, in reality, the digital platforms do not trade or sell access to the raw data of the users, which stay the possession of the digital platform, but simply sell information, that is *inferences* from the data the digital platform was able to harvest *and* process on the personality of the consumers and their overall preferences. This mapping could be relevant for the specific product/service the advertiser is aiming to promote. Advertisers value a lot these inferences, to the extent that they know these are quite accurate and enable them to offer targeted advertising that would be more likely to attract the attention of the users on the products/services they promote. From this perspective, data is an indispensable input for an output sold in ‘attention markets’.

Contrary to data, which may be available from a variety of resources and is a non-rivalrous resource, attention is a scarce and rivalrous resource, to the extent that an individual has a limited attention span. As a result of the digital revolution and the systematic use of smartphones, individuals receive increasing amounts of information, which recent

842 US Senate, Committee on Commerce, Science and Transportation, A Review of the Data Broker Industry: Collection, Use and Sale of Consumer Data for Marketing Purposes (2013), 15 (although the Report noted that some of the major data brokers did not share information on their main data sources); US FTC, Data Brokers: A Call for Transparency and Accountability (May 2014), 11-15.

843 Ibid., 23-35 (noting three broad categories of products: marketing, risk mitigation, such as identity verification or fraud detection, and people search).US Senate, Committee on Commerce, Science and Transportation, A Review of the Data Broker Industry: Collection, Use and Sale of Consumer Data for Marketing Purposes (2013), 22. Actual data may be used to create ‘look-a-like’ models from predicted characteristics of types of users.

research has found lead to a narrowing of their collective attention span⁸⁴⁴. Attention is a scarce resource that may be easily exhausted in an information heavy ‘always connected’ environment. As Satya Nadella, the chief executive officer of Microsoft, wrote in a recent report ‘(w)e are moving from a world where computing power was scarce to a place where it now is almost limitless, and where the true scarce commodity is increasingly human attention’⁸⁴⁵. Professor Tim Wu at Columbia University Law School claims that ‘(o)ver the coming century, the most vital human resource in need of conservation and protection is likely to be our own consciousness and mental space’⁸⁴⁶. Research by Microsoft Canada indicates that the average human attention span went down from 12 seconds in 2000 to 8 seconds in 2012, less than the average attention span of a goldfish!⁸⁴⁷

The development of ‘addictive technologies’, such as smartphones have considerably reduced the attention span of younger generations, in comparison to older generations. Empirical research has documented the ‘accelerating dynamics’ of shorter attention cycles that has been mainly driven by ‘increasing information flows’ both in terms of content production and consumption rates through the use of smartphones⁸⁴⁸. The result is ‘shortening attention spans for individual topics and higher turnover rates between popular cultural items’, leading to the ‘squeezing of more topics in the same time intervals as the result of the (consequent) limitations of the available collective attention’⁸⁴⁹. Indeed, the research by Microsoft Canada indicated above notes that higher usage of social media ‘increases short bursts of high attention’⁸⁵⁰. These scarce period of ‘high’ ‘attention bursts’⁸⁵¹ are therefore extremely valuable for advertisers and/or companies and other entities aiming to attract consumers’ attention and influence consumer behaviour. Some media may be more efficient than others in attracting this attention.

Sohlberg and Mateer’s well known theoretical framework for analysing attention distinguishes five different components of attention on the basis of the clinical model of attention based on experimental attention literature⁸⁵² (see Table 4.2.).

844 See, Philipp Lorenz-Spreen et al. Accelerating dynamics of collective attention, *Nature Communications* (2019). DOI: 10.1038/s41467-019-09311-w and the research cited; Microsoft Canada, *Consumer Insights, Attention spans* (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf>.

845 Cited in Microsoft Canada, *Consumer Insights, Attention spans* (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf> at 4.

846 T. Wu, *The Attention Merchants* (Atlantic Books, 2016), 350.

847 Microsoft Canada, *Consumer Insights, Attention spans* (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf> at 6.

848 P. Lorenz-Spreen, B Mørch Mønsted, P. Hövel & S. Lehmann, Accelerating dynamics of collective attention, (2019) 10 *Nature Communications* Article 1759, 6.

849 Ibid.

850 Microsoft Canada, *Consumer Insights, Attention spans* (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf> at 19.

851 The concept of ‘attention bursts’ refers to a ‘count of the number of times attentional activity reaches the 75th percentile for an individual’: Microsoft Canada, *Consumer Insights, Attention spans* (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf> at 13.

852 M.M. Sohlberg & C.A. Mateer, *Cognitive rehabilitation: An integrative neuropsychological approach* (Guilford Press, 2001).

Table 4.2.: Varieties of attention

Component	Description
Focused attention	Response to discrete visual, auditory, or tactile stimuli
Sustained attention	Vigilance and working memory
Selective attention	Ability to ignore irrelevant or distracting stimuli
Alternating attention	Set shifting, mental flexibility
Divided attention	Ability to respond to multiple simultaneous tasks

Source: M.M. Sohlberg & C.A. Mateer, Cognitive rehabilitation: An integrative neuropsychological approach (Guilford Press, 2001).

Following this model, research by Microsoft Canada examined how our increasingly digital lives may affect three components ('types') of attention from those enumerated above: in particular, sustained, selective and alternating attention.

First, with regard to sustained attention, the research notes that that exposure to increased digital consumption through social media usage erodes long-term focus⁸⁵³. Indeed, social media users, which is a large and increasing part of the human population, pay more attention in interactive (digital) environments, their results being also high with regard to connection (emotional attachment) and encoding (memory). The research emphasises how overall, 'digital lifestyles have a negative impact on prolonged focus'⁸⁵⁴. As a result, consumers are trained to become better at processing and encoding information through these highly valuable 'short bursts of high attention'⁸⁵⁵.

Second, digital lifestyles also have implications on selective attention. A number of similar devices (PCs, smartphones, tablets or combinations) have become the 'gatekeepers of an infinite number of distractions and sources of instant gratification', but also important gateways to consumers' attention. Users attempt to simplify their lives by disconnecting or switching off these devices, expressing their wish to filter out distractions⁸⁵⁶. This need for simplification leads to the finding that '(w)hat consumers can see in one glance has everything to do with what they'll do next'⁸⁵⁷. Again, this has important implications on companies' strategies to attract attention and indicates the existence of important leverage and tipping points for attention.

853 Microsoft Canada, Consumer Insights, Attention spans (2015), available at <http://dl.motamem.org/microsoft-attention-spans-research-report.pdf> at 18.

854 Ibid., 23.

855 Ibid.

856 Ibid., 27.

857 Ibid., 33.

Third, although an active engagement with social media may build alternating attention and train users to multi-tasking, when this use crosses the top quartile, social media drain resources and reduce the ability of users to allocation attention, 'connect with content on an emotional level, and process information'⁸⁵⁸.

Attention can be captured in different ways, depending on the form of the 'attentional decision' of the user⁸⁵⁹. In reviewing the attention scholarship, Tim Wu distinguishes broadly between two different mechanisms for making these attentional decisions: the first is when attention can be seized in voluntary manner, and the second when attention is captured without a voluntary decision being made by the agent⁸⁶⁰. He includes in the second category 'bottom-up' or 'stimulus-driven' attention 'activated by lower parts of the brain outside of conscious control', to the extent that our brains are 'involuntarily responsive to properties inherent in certain forms of information' or stimuli (e.g. food, familiar faces, potential sexual partners)⁸⁶¹.

These different mechanisms to capture attention, sometimes involuntarily, are well known by the 'management of specific demand industry', whose purpose is to 'shift the locus of decision in the purchase of goods from the consumer where it is beyond control to the firm where it is subject to control'⁸⁶². This includes according to the description given to it by John K. Galbraith, not only the advertising industry but also 'a huge network of communications, a great array of merchandising and selling organizations', 'numerous ancillary research training and other related services'⁸⁶³ in these economics of 'increasing affluence'⁸⁶⁴ but also of limiting attention.

What has changed with the emergence of digital platforms and superior technologies of personalisation is that instead of this management of demand being targeted to the mass, it is now possible to target it to the individual consumer. By selling attention and enabling targeted advertising, digital platforms also contribute and form part of this 'management of specific demand industry'.

In a recent working paper, Andrea Prat and Tommaso Valletti formalise the ability of digital platforms to sell personalised advertising to product market firms.⁸⁶⁵ Prat and Valletti propose that usage data held by digital platforms provides them with proprietary information on the activity of users, to which the platforms apply artificial intelligence in order to infer consumption preferences of individual users.⁸⁶⁶ Acting as 'attention

858 Ibid., 40.

859 T. Wu, Blind Spot: The Attention Economy and the Law, Wu, Tim, Blind Spot: The Attention Economy and the Law (March 26, 2017). Antitrust Law Journal, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=2941094> 11 fn 49 (defining attention as 'the decision of what stream of information to process').

860 Ibid., 12.

861 Ibid., 12, fn 51.

862 J. K. Galbraith, The New Industrial State (Princeton Univ. press, 2007), 255.

863 Ibid., 247-248.

864 J. K. Galbraith, The Affluent Society (Houghton Mifflin, 1976).

865 A. Prat & T. Valletti, 'Attention Oligopoly' (2019) SSRN Electronic Journal <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3197930>

866 As per Ajay Agrawal, Joshua Gans and Avi Goldfarb, The Simple Economics of Artificial Intelligence (Harvard Business

brokers', the platforms then sell, via auction, targeted advertising to the firms that supply the product or service the user is interested in. Given the scarcity of attention noted above, platforms become 'attention bottlenecks', through which they control access to consumers.⁸⁶⁷

Moreover, it is the largest digital platforms, including Google and Facebook, that are best able to match consumers and advertisers due to the scope, scale and timeliness of the data they collect and analyse. Access to such personalised advertising, through the platform-bottleneck, may play a significant role in maintaining or establishing market power for retailers.⁸⁶⁸

Indeed, in line with Prat and Valletti's narrative, the business model of some of the leading digital platforms relies on advertising revenue, collected at the money side of the platforms, which partly subsidises the content received by users on the other side, to the extent that users do not pay a monetary price (free content). Users may pay a price in a reduction of their privacy, as their personal data is harvested by the platform. As indicated above, this data is used as input for the delivery of the services of digital platforms, the inferences as to the users' preferences and personality that would enable the advertisers to target them better. The business model is particularly ingenious as the 'free' content from which the consumers may benefit, and which acts as bait (the 'honey') to attract their attention, at the same time adds to the information they receive and therefore narrows down their attention span. This makes the attention of the users even more valuable for advertisers, which are then ready to pay increasingly high amounts for their ads to be placed at a more valuable attention grabbing position, or for benefiting from specialised advice on what would better attract a specific user's attention. This process of value extraction therefore is self-reinforcing as it contributes to the scarcity of attention that generates the surplus value captured by the various business actors involved in this process. Hence, competition is not really for data but for the increasingly scarce resource of human attention.

This form of scarcity has its proper intermediaries: the so called 'attention merchants'⁸⁶⁹. One of the first manifestations of this new form of commerce is the emergence of printed advertising in the late 17th century in England⁸⁷⁰, and in the printing press in the early decades of the 19th century in England and the United States⁸⁷¹ as a way to finance the printing and distribution of newspapers below costs, to the extent that these were subsidised by the revenue made by selling advertising. Newspapers were indeed not relying

Review Press 2018).

867 A. Prat & T. Valletti, 'Attention Oligopoly' (2019) SSRN Electronic Journal <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3197930>; David Parker and Federico Bruni, 'Attention Oligopoly: Comments on the Paper by Prat & Valletti' (2019) CPI Antitrust Chronicle April 2019.

868 A. Prat & T. Valletti, 'Attention Oligopoly' (2019) SSRN Electronic Journal <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3197930>.

869 T. Wu, *The Attention Merchants* (Atlantic Books, 2016).

870 See, B.B. Elliott, *A History of English Advertising* (B.T. Batsford, 1962); A. Bruttini, *Advertising and the Industrial Revolution*, (1973) 4 *Economic Notes* 2

871 T. Wu, *The Attention Merchants* (Atlantic Books, 2016), Chapter 1.

on the 'traditional strategy' for making profit, that of selling at a price that is higher than the cost of production, but on different business model, the reselling of the attention of their readers in advertising markets⁸⁷².

We consider that the field on which the assessment of competition takes place needs to be determined according to the broader conception of the competition game and in particular being related to the process of accumulation of capital and the capture of value in the digital economy. Hence, we need to explore more closely the value generation and capture process taking place in these 'attention' markets. An important issue with 'attention' markets is nevertheless to develop an appropriate metric that would enable competition authorities to prioritise their scarce resources and ensure that their intervention in these markets may be effective.

Digital advertising markets may provide indications as to the value of this attention captured by the digital platforms (by reference to some form of hedonic pricing). Digital advertising spending has risen considerably worldwide, from \$152 billion in 2015 to \$204 billion in 2017. Internet advertising spending worldwide is projected to rise to \$142,2 billion for display advertising, \$109 billion for advertising in search engines (paid search), and \$23,2 billion for classified Internet ads (\$274.4 billion)⁸⁷³. Most of this digital advertising revenue was collected in 2018 in the US (\$100.69 billion), followed by China (\$48.96 billion), the UK (\$12.74 billion), Japan (\$11.7 billion), and Germany (\$10.65 billion)⁸⁷⁴. Digital advertising is still however not the most significant source of advertising revenue. In the US, out of the \$191.2 billion total of the advertising market (all media), Internet/digital advertising occupied the second place in 2016, while TV advertising was ranked first, with much smaller parts going to radio advertising, newspaper and consumer magazines advertising and outdoor advertising⁸⁷⁵. The largest part (a little more than 60%) of the digital advertising revenue is collected through the use of mobile rather than desktop computing⁸⁷⁶. With regard to the US digital advertising spending per industry, more than 20% comes from the retail sector, followed by the automotive industry (12.6%), financial services (12.2%), telecom (10.7%), and consumer products (8,8%)⁸⁷⁷. Online advertising has also surged in Europe. In the UK, the largest market in Europe, online advertising accounted for 52% of total UK ad spend (most of this generated by mobile Internet use), followed by TV advertising (with a little more than 12% of the total UK ad spend), advertising being the main source of funding for online content⁸⁷⁸. Paid for search accounted for half of the online advertising, although display advertising

872 Ibid., 12.

873 Zenith, ID 276671.

874 Statista (Digital Market Outlook), Global overview, ID 459632.

875 MoffettNathanson, ID 272315 (2016).

876 Statista (Digital Market Outlook) ID 459593.

877 eMarketer: Marketing Charts ID 301868.

878 OFCOM, Communications Market Report (August 2nd, 2018), available at <https://www.ofcom.org.uk/research-and-data/multi-sector-research/cmr/cmr-2018-76-77> (noting that other forms of funding include subscription-based services (such as Amazon Prime Video, Netflix, Financial Times) and transaction/donation based (such as YouTube, The Guardian)).

also made heavy inroads in recent years⁸⁷⁹.

The core activity of these advertising markets therefore consists in the capture of the attention of the users of digital platforms. The attention of users becomes a commodity that is freely traded and exchanged in attention markets. An important dimension of assessing the economic impact of the conduct of the rise of dominant digital platforms on the attention of consumers is to determine the value and the boundaries of these markets. The fact that attention can be valued results from its commodification and evaluation in the context of specific advertising markets. This can even go beyond taking the form of evaluation in fiat money, but embracing futurity even further, its value can be represented by a 'basic attention token' as this was issued in the context of the Initial Coin Offering of BAT, a token that can be exchanged between publishers, advertisers, and users in order to obtain a variety of advertising and attention-based services on the Ethereum blockchain run BAT platform⁸⁸⁰.

However, this metric faces several problems. Although the value the advertisers spend on digital ads is considerable, this only represents just a small part of the surplus value of the activity of attracting consumer attention, which forms the core activity of prediction platforms. This comes out of the routines that consumers have developed in using the Internet and specific digital platforms in their day-to-day life and the importance this continuous use has taken in the very short period of time of the explosive growth of the Internet that followed the diffusion of smartphones (and mobile Internet) since the launch of the iPhone in 2007. Some refer to this period as the decade of 'digital dependence'⁸⁸¹. As a recent report by the UK OFCOM (telecom regulator) explains, 'in an "always on" society, people expect to be connected everywhere through a plethora of devices'⁸⁸². The OFCOM report found that in a world where mobile phones are becoming ubiquitous, the time people spend online has considerably increased (in the UK it doubled on average from 12,5 hours in 2007 to 24 hours in 2018, while a fifth of adults, mostly the younger generations spend more than 40 hours each week online)⁸⁸³. Almost two thirds of adults (64%) in the UK agreed that the internet was an essential part of their life⁸⁸⁴. Consumers are always connected or feeling connected, the OFCOM report finding that '40% of adults first look at their phone (apart from checking the alarm/clock) within five minutes of waking up, increasing to 65% of under-35s. Even before going to sleep, 37% of adults check their phones five minutes before lights-out, again increasing to 60% of under-35s'⁸⁸⁵.

As previously mentioned this higher intensity of connectivity and use of the Internet is related to the rise in the use of smartphones, combined with the take-up of 3G and

879 Ibid., 78 (noting the increasing prevalence of video overtook banners for his type of ad format).

880 See <https://basicattentiontoken.org/>.

881 See <https://www.ofcom.org.uk/about-ofcom/latest/features-and-news/decade-of-digital-dependency>.

882 OFCOM, Communications Market Report (August 2nd, 2018), available at <https://www.ofcom.org.uk/research-and-data/multi-sector-research/cmr/cmr-2018>, 4.

883 Ibid., 14.

884 Ibid., 15.

885 Ibid., 15.

4G networks improving the quality of connectivity, which enhanced mobile Internet access⁸⁸⁶. Smartphones offer a multi-functional device that usually combines functions previously completed by a range of devices. While the take-up of new technologies, such as smartphones, smart TVs, tablets or laptops has risen, other technologies, such as DVD players, Desktop PCs, MP3 players have seen their take-up decrease during this period, the smartphone becoming the more ubiquitous digital device.⁸⁸⁷ This ensures that the digital platforms controlling access to central points of control of control the vast amounts of information generated by Internet use. The use of new devices, such as smart speakers, whose functionality may be extended with software similar to smart-phone apps, or voice assistants is on the rise and would have considerable implications on the use of Internet as the devices are now controlled by the user's voice through an integrated AI voice assistant⁸⁸⁸. Voice control systems are also integrated in smart-phones, tablets, and certain models of smart TVs and even cars, and often provide the possibility of voice recommendations, further affecting the choice architecture of the user, as this does not have to choose on screen among different options but is instead 'suggested' an 'optimal' choice devised by the algorithm.

Accessing the Internet also becomes an activity that may be exercised outside work or home, the amount of time people spend online in a location other than work or home having quadrupled between 2007 and 2017⁸⁸⁹. An increasing number of people use their smartphone while commuting (the most frequent uses being sending and receiving text messages/ instant messages, accessing social networking sites and general web browsing)⁸⁹⁰. People use the Internet for entertainment, in order to avoid 'boredom', for shopping and online banking, as well as in order to stay connected with friends and family, although it is also acknowledged that being online may sometimes interrupt face-to-face communications⁸⁹¹.

Large digital platforms, such as Google and Facebook in Europe and the US, account for a very large amount of use of this important and increasing amount of time spent online⁸⁹². Figure 4.16. provides the list of the top 10 Internet properties accessed on mobile/desktop devices in the UK during March 2016 and March 2018. It appears in this Figure that Google sites (including You Tube, Google Search, Google maps, Gmail) and Facebook (including Instagram, Whatsapp and the main Facebook site) are ranked first and second properties with a considerably more intensive use, in terms of average time spent per person per month, than other websites.

886 The report notes that use of a smartphone increased from 27% of all adults in 2011 to 78% in 2018: Ibid., 16.

887 Ibid., 24.

888 Ibid., 40.

889 Ibid. 15.

890 Ibid., 17.

891 Ibid., 19.

892 Ibid., 65.

Figure 4.16: Top ten properties assessed on mobile/desktop devices in the UK, ranked by reach: March 2016-March 2018

Average time spent per person per month

<100 mins 100-300 mins >300 mins

	2016		2017		2018	
Rank	Property	Reach	Property	Reach	Property	Reach
1	Google Sites	98%	Google Sites	98%	Google Sites	99%
2	Facebook	87%	Facebook	91%	Facebook	95%
3	Amazon Sites	82%	Microsoft Sites	87%	BBC Sites	93%
4	Microsoft Sites	82%	BBC Sites	87%	Amazon Sites	89%
5	BBC Sites	81%	Amazon Sites	85%	Microsoft Sites	87%
6	Yahoo Sites	72%	Trinity Mirror Group	73%	Oath	81%
7	eBay	69%	eBay	71%	Sky Sites	73%
8	Sky Sites	65%	Mail Online/Daily Mail	70%	Trinity Mirror Group	71%
9	Trinity Mirror Group	64%	Yahoo Sites	69%	News UK Sites	71%
10	Mail Online/Daily Mail	63%	Sky Sites	67%	eBay	69%

Source: OFCOM, Communications Market Report (August 2nd, 2018), available at <https://www.ofcom.org.uk/research-and-data/multi-sector-research/cmr/cmr-2018> 71.

In this attention-seeking economy firms do not only compete for consumer expenditure, which may constitute the main incentive of firms present in advertising markets to be matched to consumers, but also, or sometimes instead, for consumer attention⁸⁹³.

Economic literature has explored different ways to value this consumer attention dedicated to online activities and the time spent on websites controlled by the major digital platforms.

As we have indicated, economists initially focused on the amount of money spent by advertisers, but this may under-represent the value of 'attention markets'. Other approaches started focusing on the time the users were spending on these platforms in an effort to assess the value provided by the Internet to consumers, which was difficult to assess under the traditional metrics as the services provided by these digital platforms were 'free', in the sense of 'zero-priced'. The ultimate purpose of these measurement efforts was to assess the value of the Internet⁸⁹⁴. Such evaluations were of course also related to the effort of determining the value provided by online ads to advertisers, publishers, charities and others, and were particularly important in the process of setting the auction technique that was used to value ads in the most popular digital platform in terms of number of users, Google⁸⁹⁵. Indeed, bidders compete through auctions managed by Google Ads for longtail keywords which may be most relevant for their target audience. However, they only have to pay if someone clicks on the ad (pay per click or

893 A. Boik, S. Greenstein & J. Prince, The Empirical Economics of Online Attention, NBER (July 2016).

894 See, H. Varian, Economic Value of Google (2011), available at <http://assets.en.oreilly.com/1/event/57/The%20Economic%20Impact%20of%20Google%20Presentation.pdf>; E. Brynjolfsson & J. Hee Oh, The Attention Economy: Measuring the Value of Free Digital Services on the Internet, (2012) available at <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1045&context=icis2012>.

895 H. Varian, Economic Value of Google (2011), available at <http://assets.en.oreilly.com/1/event/57/The%20Economic%20Impact%20of%20Google%20Presentation.pdf>

PPC) at the price set at the auction. Advertisers may predict how many clicks they will get at a new bid by using a Bid Simulator. This assumes of course that the value per click, generated for instance by the conversion of the click to, for instance, an online e-commerce transaction on the specific website, is greater than the incremental cost per click. In a widely publicised presentation in 2011 the chief economist of Google, Hal Varian, indeed indicated that advertisers on Google were getting back about seven times what they spent in value of ad clicks. They also had the possibility to benefit from clicks coming out of organic (non-ad funded search). While AdWords is focusing on the advertisers' side, AdSense focuses on publishers or Website owners helping them to reserve space for AdWords placements on their website (these could be text, video, images), the Google platform operating as an intermediary between advertisers and publishers/website owners. The latter get a 67% share of the ad revenue generated by AdSense. Varian also emphasised the benefits going to the users of Google's search engine in terms of time 'saved', estimating that this amounted to an annual value of \$120 billion in 2011, on the basis of the value of time savings to average users, but did not discuss any opportunity costs these may incur because of their attention being grabbed by the platform. Indeed, determining such opportunity costs may be quite difficult, if not impossible. However, factoring these costs in the analysis is essential if one needs to take into account all the social benefits and costs of the business model of digital platforms.

There are two possibilities to account for this opportunity costs of attention. A time-based model will focus on the percentage of time users spend online, from their available time excluding hours of sleep, and how much time from this is accounted for by Big Tech⁸⁹⁶. A money-based model would go try to assess the value of the attention time users spend on digital platforms. Evans notes the increasing amount of time users spend on Apps/Web accessed through smartphones and tablets or other multimedia devices, in comparison to the time they spent on other media, such as Live TV, DVR/Time-Shifted TV or AM/FM Radio etc.⁸⁹⁷. Evans only takes into account the time spent on ad-supported content, some of which is spent offline (e.g. newspapers, radio, TV). Then Evans relies on the economics of household production in order to measure the value of consumer attention. He divides the time people spent to three broad categories: labour, household production and entertainment/leisure time, acknowledging that this tripartite distinction does not account well for multi-tasking as people may do more than one type of activity at the same time. Evans recognises that 'consumers have a finite amount of time and must allocate it across competing uses'⁸⁹⁸. Indeed, for Evans, 'consumers allocate time to wage work until the marginal rate of substitution between consumption and leisure equals the marginal after-tax wage rate, which therefore provides a

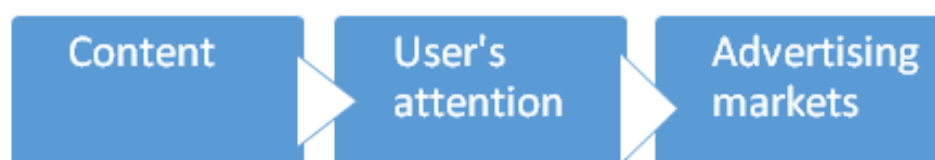
896 See, for instance, E. Brynjolfsson & J Hee Oh, *The Attention Economy: Measuring the Value of Free Digital Services on the Internet*, Proceedings of the Thirty Third International Conference on Information Systems, Orlando, available at <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1045&context=icis2012>.

897 D.S. Evans, *The Economics of Attention Markets*, (October 31, 2017), available at SSRN: <https://ssrn.com/abstract=3044858>.

898 Ibid., 7.

monetary measure of the value of time⁸⁹⁹. From this starting point, he concludes that 'the opportunity cost of an extra hour consuming content is equal to the after-tax marginal wage rate'⁹⁰⁰. On this basis, Evans assesses the value of the 437 billion hours US consumers spend on ad-supported content to \$7,1 trillion (taking into account after-tax average wage as a measure of the opportunity cost of time), this figure coming down to \$5 trillion (if one takes into account before tax average wage rate) and \$2 trillion (if one considers after tax minimum wage)⁹⁰¹. This time is valuable and could of course be used for other things. Evans ventures that 'consumers receive surplus over and above what they pay in the form of time for consuming content'⁹⁰².

The content consuming users' time is not always produced by the digital platforms, their role being merely to match content with users grabbing their attention and then to resell users' attention in advertising markets, by matching an ad with a user who in all likelihood, in view of his past revealed preferences or inferences about his preferences, will be interested in it. Digital platforms therefore compete to get users to spend time with them.



The more a platform spends on content, the more attention it may get. However, the possibility of the platform to resell that attention is fixed as there is a fixed amount of time, or space, available for ads, as there is a risk that in case the platform includes more ads, this may have negative effects to the attention of the users which may abandon the platform, of course in case there are less-intensive in terms of ads platform available. Advertisers realise diminishing returns from the attention they attract through content as consumers have decreasing propensity to buy advertisers' products if they spend more time on the free content.

Evans' analysis does not take into account the fact that as it is observed in the EU panel of experts report, '(m)any consumers are typically not consciously participating in this exchange, or do not appreciate the value of the attention they are providing'⁹⁰³. Although he acknowledges that the HHI of the top 1000 websites, in terms of time share, has increased from 2868 in 2008 to 2968 in 2013, therefore showing that this is a concentrated market, he also notes that 'the HHI understates the degree of competition for attention because it is a static measure that does not reflect the entry and exit, and expansion and decline, of websites, which takes place over relatively short periods of time'⁹⁰⁴. For instance, he refers to studies that have found that the top five websites

899 Ibid., 9.

900 Ibid. 10.

901 Ibid., 12.

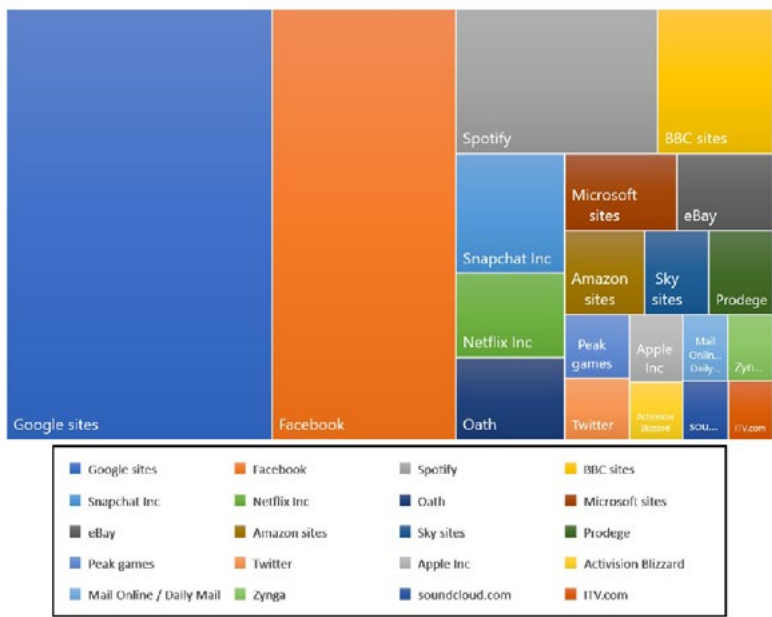
902 Ibid., 28.

903 European Panel of Experts Report (2019), 22.

904 D.S. Evans, The Economics of Attention Markets, (October 31, 2017), available at SSRN: <https://ssrn.com/ab->

accounted for 42.5% of the time in 2008 but their share declined to 20% by 2013⁹⁰⁵. However, the same study notes the limit of the number of websites that can be visited by households and that people do not split time into more numerous and shorter site visits⁹⁰⁶. This indicates that browsing behavior may be stable over time, thus limiting the opportunity of other websites to make serious gains in these attention markets. Indeed, if one looks to the share in terms of time spent on the top 20 websites in the UK, the market looks quite concentrated (see Figure 4.17).

Figure 4.17: Share of time spent on top 20 sites by UK users



Source: Comscore cited in Furman et al Report (2019), 29

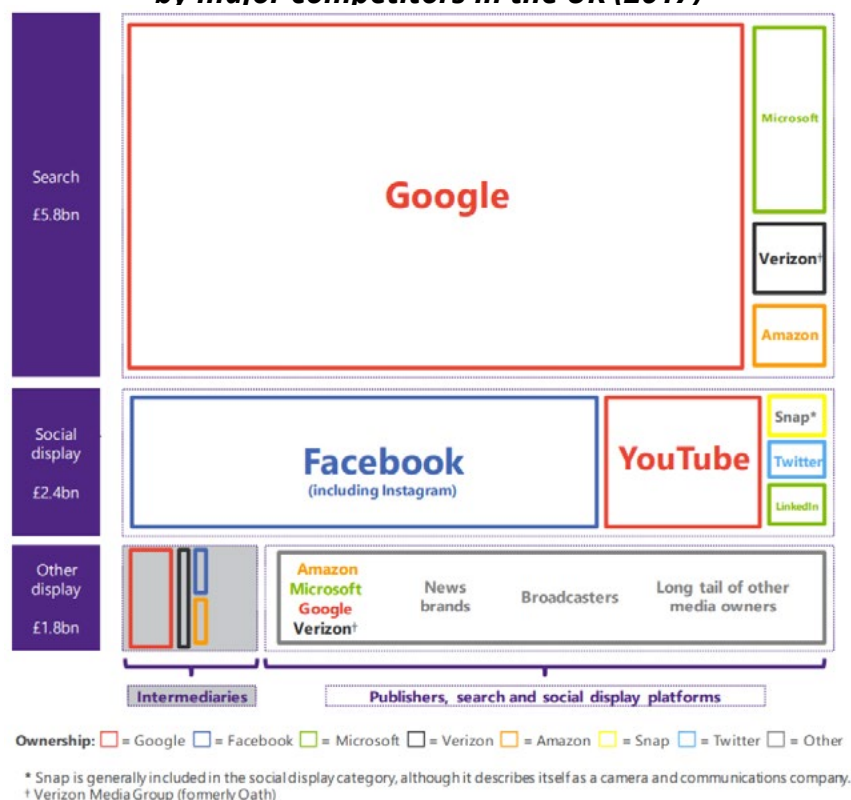
One may also note that other studies have found that the top websites' share in terms of advertising revenue indicates that the market of attention (taking into account its advertising side) is quite concentrated (see Figure 4.18.).

stract=3044858 , 22-23.

905 Ibid., 25 referring to A. Boik, S Greenstein & J. Prince, The Empirical Economics of Online Attention, NBER Working Paper Series (July 2016), available at <https://www.nber.org/papers/w22427> .

906 A . Boik, S Greenstein & J. Prince, The Empirical Economics of Online Attention, NBER Working Paper Series (July 2016), available at <https://www.nber.org/papers/w22427> , 29.

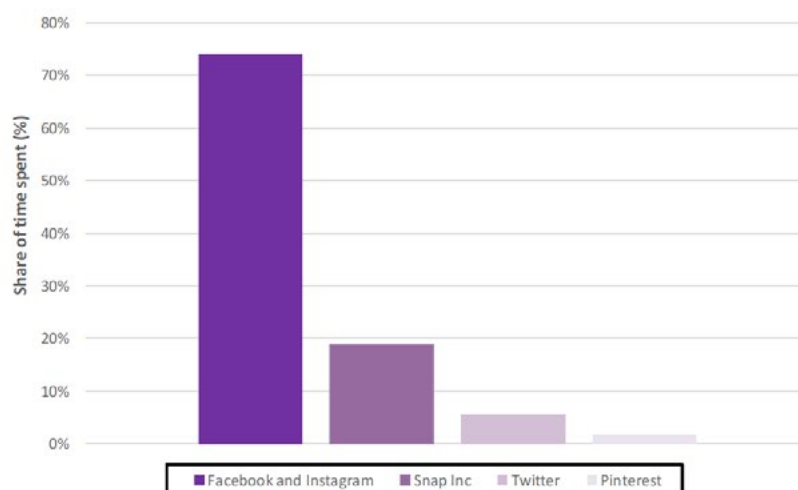
Figure 4.18.: Indicative market share of online advertising expenditure by major competitors in the UK (2017)



Source: Plum Consulting cited in Furman et al Report (2019), 28.

Similar findings were made with regard to the share of time spent on social media platforms in the UK (see Figure 4.19)

Figure 4.19.: Share of time spent on selected popular social media services in the UK



Source: Comscore cited in Furman et al Report (2019), 26

More generally, Evans takes the view that advertising fulfils the function to inform the consumers so as to enable them to make more efficient choices, and it is therefore

something that may be considered as contributing to consumer surplus⁹⁰⁷. By espousing this assumption Evans seems to adhere to the informative view of advertising, according to which the principal function of advertising is to convey information to consumers, and from that perspective, to help them choose the products/services that correspond the best to their preferences⁹⁰⁸. This view has been advanced by authors close to the Chicago School of economics⁹⁰⁹. Telser, a proponent of that view, argued that ‘advertising is frequently a means of entry and a sign of competition’, in view of its role as ‘an important source of information’ for consumers⁹¹⁰. More importantly, although Telser recognizes that ‘firms which have some monopoly power are more likely to advertise because they can obtain most of the increased sales stimulated by their advertising’, he also finds a weak correlation between concentration or stable market shares and advertising, thus questioning the causal link earlier made by the proponents of the persuasive view⁹¹¹. Nelson also advances an informative view argument by distinguishing between search goods (whose quality can be determined prior to purchase, even if at high costs) and experience goods (whose quality can only be determined after consumption) and observing the benefits of advertising (and enhanced product differentiation) for experience goods (through the provision of indirect information on the product)⁹¹². Advertising constitutes a way for the firms to signal to consumers that they are the most efficient (low-cost) firms, since they seek demand expansion (the ‘signalling-efficiency effect’ of advertising). Furthermore, ‘(a)dvertising increases the probability of a consumer’s remembering the name of a brand’, and therefore advertising assists the consumer by informing his choice (‘the match-products-to-buyers effect’). Hence, advertising, as well as any mechanism of product differentiation (such as branding) stimulate price comparisons and therefore price competition. Finally, advertising, and brands in general, assist the consumer to draw positive associations between specific products and quality, reminding them of their previous experience with the product (‘the repeat-business effect’)⁹¹³.

One may nevertheless take a more negative view on advertising as to its benefits for consumers, and adopt the persuasive view that focuses on the potential of advertising to manipulate consumers. Advertising may be perceived as a tool to alter consumer preferences and to create product differentiation and brand loyalty, driving the demand curve of the advertised product to become more inelastic and thus leading to higher prices for consumers, as well as have an ‘entry-deterrence effect’⁹¹⁴. Empirical work has

907 D.S. Evans, *The Economics of Attention Markets*, (October 31, 2017), available at SSRN: <https://ssrn.com/abstract=3044858>, 30.

908 K. Bagwell, *The Economic Analysis of Advertising*, Discussion paper No. 0506-01, Columbia University, Department of Economics, August 2005, p. 16.

909 G.J. Stigler, *The Economics of Information*, *Journal of Political Economy*, 69 (1961), 213-25.

910 L.G. Telser, L. G., *Advertising and Competition*, *Journal of Political Economy*, 72 (1964), 537-62, 558.

911 *Ibid.*, 544.

912 P. Nelson, P., *Advertising as Information*, *Journal of Political Economy*, 82 (1974), 729-54, 732-34.

913 *Ibid.*

914 K. Bagwell, *The Economic Analysis of Advertising*, Discussion paper No. 0506-01, Columbia University, Department of Economics, August 2005, 9.

confirmed some of the intuitions of the 'persuasive view'. Comanor and Wilson performed a multi-variate regression analysis of the averaged profits of manufacturers in 41 consumer-good industries for a period of three years and found 'empirical support for the conclusion that the heavy volume of advertising expenditures in some industries serves as an important barrier to new competition in the markets served by these industries'⁹¹⁵. More recently, with regard to product differentiation Bronnenberg *et al* highlighted that brands, advertising, or other past experiences and social milieu, such as childhood, lead to 'preference capital', which could be a valuable asset for incumbent firms and a source of long-term economic rents for them⁹¹⁶. This explains, according to these authors, why consumers have high willingness to pay for particular brands, even when the alternatives are objectively similar⁹¹⁷. This evidence indicates that brand loyalty may not always be a natural outgrowth of consumer preferences and that there is value for firms to use advertising, branding or other forms of product differentiation in order to establish some form of 'preference capital'. This strategy may generate high willingness to pay for consumers and presumably steady economic rents for the incumbents in the future, without that being justified by the objective characteristics of their product/or service in comparison to the products/services of a new entrant. In other words, incumbent firms may have the incentives and the ability to alter the utility function of consumers in order to increase their profits.

The emphasis put on the potential of manipulation through advertising or more broadly choice architecture and agenda-setting may indeed shed light on one of the sources of power for digital platforms, and the reasons their valuation by financial markets has skyrocketed in recent years. The more people switch to a digital an 'always connected' way of life, the more the opportunities to influence their preferences through choice architecture or outright manipulation become more important. Firms may more actively manipulate the choice of consumers in digital markets⁹¹⁸, and will be able to do this even more effectively as the control of devices moved from screens, where the user benefits from a relatively open architecture, to voice-controlled devices. The message provided by advertisers may be even more convincing the more it is targeted to the specific vulnerabilities and core beliefs of the consumer. Hence, the value of digital platforms is not only related to their matching function but more importantly to their predictive and manipulative function. This raises interesting issues for competition law enforcement, and its interaction with other areas of law aimed to protect consumers from deception or manipulation, such as consumer law. The discussion over the effects of digital

915 W.S. Comanor and T. A. Wilson, *Advertising and Market Power* (Cambridge, MA: Harvard University Press, 1974), p. 239.

916 Bart J. Bronnenberg, J.-PH. Dubé, M. Gretnzkow, *The Evolution of Brand Preferences: Evidence from Consumer Migration*, *American Economic Review*, 102(6) (2012), 2472-2508.

917 Ibid. See also, BJ. Bronnenberg, S.K. Dhar, J.-P.H.. Dubé, *Brand History, Geography, and the Persistence of Brand Shares*, *Journal of Political Economy*, 117(1) (2009), 87-115. Yet, these preference are shaped during a considerable period of time.

918 See, J D. Hanson & D A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, (1999) 74 *New York University Law Review* 630. For the first study in EU competition law raising this problem, see N. Economides & I Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft cases*, (2009) 76 *Antitrust Law Journal* 483, 542.

platforms on attention markets also raises the potential of exploitation of consumers. This can take different forms related to the different activities of digital platforms. First, harvesting personal data may affect privacy and produce consumer harm, if privacy is considered as an important parameter of competition by consumers (see our analysis in Chapter 11). Second, by proceeding to frequent ‘attentional intrusions’ digital platforms may commit ‘attention theft’, defined as ‘the non-consensual seizure of the scarce resource of attention, yielding cognitive impairment’, thus producing consumer harm⁹¹⁹. Thirdly, digital technology offers the enhanced possibilities of personalisation, which may in turn lead to abuses, such as algorithmic discrimination and personalised pricing. We explore the implications of personalisation for determining the field of the competition law assessment in the next Section.

4.4.3. Personalised markets

It is increasingly acknowledged that data collection is fundamental to firms’ ability to compete in the future Internet of Things (‘IoT’), Internet of Services (‘IoS’) and/or Internet of Everything. The firms that have obtained access to the largest amounts of data will benefit from a competitive advantage.⁹²⁰ Data analytics connected to the use of software for predictive modelling, will also reinforce the competitive advantages of such firms, with this ultimately being crystallised in architectural advantage because of their control of ‘idiosyncratic rent-earning resources’ (i.e. in the form of superior algorithms) or, more generally, by their development of capabilities that cannot be imitated by competitors (because of increasing returns to scale).⁹²¹ With the advancement of the IoT and IoS and the possible emergence in the near future of the Internet of Everything, the amount of data that will be collected will increase immensely, including in industries that were not previously digital.

Much of this data will relate to the digital identity of the consumer and will enable companies to draw a pretty accurate individual preferences map for each of their clients. More than just being dominant in an ‘attention market’⁹²², firms may be able to practice behavioural pricing or personalised price discrimination, which comes tantamount to first degree price discrimination (or person-specific pricing). This is now possible in view of Big Data and algorithmic pricing as practiced in online commerce, as sellers charge different prices depending upon a buyers’ search history, or “digital shadow”⁹²³. Recent calls

919 T. Wu, Blind Spot: The Attention Economy and the Law (March 26, 2017). Antitrust Law Journal, forthcoming, available at SSRN: <https://ssrn.com/abstract=2941094>, 9.

920 There is a discussion regarding the definition of ‘data’: does it encompass syntactic information, semantic information, or both; and where should one draw the line in reference to protecting ‘data’?

921 M. Jacobides, S. Winter & S. Kassberger, “The Dynamics of Wealth, Profit, and Sustainable Advantage”, (2012) 33 Strategic Management Journal, 1386.

922 On this concept, see T. Wu, Blind Spot: The Attention Economy and the Law (March 26, 2017). Antitrust Law Journal, forthcoming, available at SSRN: <https://ssrn.com/abstract=2941094>; D.S. Evans, The Economics of Attention Markets, (October 31, 2017), available at SSRN: <https://ssrn.com/abstract=3044858>.

923 M. Gal, ‘Algorithmic-facilitated Coordination’, DAF/COMP/WD(2017) 26 (noting that “ (a)s more data is gathered about each consumer’s preferences, a personalized ‘digital profile’ can be created by algorithms, which calculates and updates

for intervention against “behavioural pricing” (or personalised price discrimination)⁹²⁴, which may be considered as a form of algorithmic discrimination, illustrate the broader societal concerns (if not only economic) that are raised with regard to the perceived manipulation of consumers by companies, something as old as advertising exists.⁹²⁵ In the era of “machine learning” and Artificial intelligence-assisted pricing the risks of “digital” consumer manipulation may admittedly increase at an industrial scale.⁹²⁶ Digital markets exacerbate the above risks, in view of the possibilities they offer of “a vast psychological audit, discovering and representing the desires of society”⁹²⁷ and of each individual separately, offering sophisticated evaluation methods that are closely linked to the direct observation of consumer preferences, but also more broadly of a whole range of preferences expressed in social, and private life, through the means of socio-metric analysis⁹²⁸. Big data enable us to observe, allegedly more accurately, the inner mental states of people and potentially influence the way these form their core preferences. Such manipulative potential and of course the possibility that this may occur at a larger scale, in view of the possibilities offered by algorithms, data analysis and artificial intelligence, is clearly motivating public authorities to action.

This may later feed in the companies’ commercial strategies that may, for instance, develop personalised pricing strategies, which may be considered a form of price discrimination.

Personalised pricing improves the ability to distinguish customers and may lead to first degree price discrimination, as well as third degree price discrimination, when it is possible for the firms to apply group pricing, discriminating between groups of consumers. Subjecting to price discrimination final users may enable the producer to capture the entire consumer surplus, generate unequal treatment of various individual consumers

each consumer’s elasticity of demand in real-time. This digital shadow can then be used by suppliers to increase their profits even further, if they can price-differentiate between the offers they make to different consumers”).

924 See, Autorité de la Concurrence & Bundeskartellamt, Competition Law and Big Data (May 10th, 2016), 21-22, noting that although the application of EU competition law to these practices may be debated, in Germany, the Federal Supreme Court found that the national provision against the abuse of a dominant position can include a consumer protection dimension as regards price discrimination, see German Federal Supreme Court (BGH), „Entega II”, KZR 5/10, judgment of 07.12.2010. For a discussion of “personalised pricing” see, P Coen & N Timan, ‘The Economics of Online Personalised Pricing’ (Office of Fair Trading 2013); Oxera, ‘Behavioural Economics and Its Impact on Competition Policy’ (Oxera 2013) ; T.J. Richards et al, Personalized Pricing and Price Fairness, (2015), available at https://courses.cit.cornell.edu/jl2545/papers/personalized_Pricing_IJIO.pdf ; A Ezrachi & M Stucke, ‘The Rise of Behavioural Discrimination’ [2016] 37 ECLR 484; A Ezrachi & M Stucke, Virtual Competition (Harvard University Press 2016), Chapter 11 (distinguishing “near perfect” discrimination, involving the categorisation of consumers through the harvesting of personal information collected with the help of Big Data and self-learning algorithms, from “behavioural” discrimination, which is led with the aim to trigger consumer biases and increase consumption); M Bourreau et al., Big Data and Competition Policy: Market Power, personalised pricing and advertising, CERRE Project Report (February 2017).

925 See, I Lianos, ‘Brands, Product Differentiation and EU Competition Law’ in D. Desai, I. Lianos & S. Weber Waller (eds.), Brands, Competition Law and IP (Cambridge University Press, 2015), (discussing the ‘persuasive view’ of advertising in economic literature).

926 R Calo, ‘Digital Market Manipulation’, (2014) 82 George Washington Law Review 995.

927 W. Davies, The Happiness Industry: How the Government & Big Business Sold Us Wellbeing (Verso, 2015).

928 Ibid.

or groups of consumers, and affect competition with other producers (not necessarily of the same relevant market), in the sense that by enabling the producer to charge a specific consumer as high as his willingness to pay, reduces the available income of the consumer to make other purchases. Different producers compete for the limited resources/budget of a consumer or a group of consumers.

Personalised pricing or “price targeting” has been observed in various markets.⁹²⁹ To the extent that this manipulation may result in welfare losses for individuals, or group of consumers, in the sense that the specific individual, or the specific group of consumers, could find its/their situation worse off, in comparison to a counterfactual where no such digital manipulation would have taken place, it can be argued that these deviations from the counterfactual situation need to be corrected through State intervention, eventually by competition law enforcement. But this is a matter for debate. One may argue that personalised pricing should not be considered as a form of “manipulation”, but as a technological opportunity to charge each consumer as much as her/his willingness to pay is. This may, for instance, enable some consumers that would not have been able to purchase the specific product, if a uniform price would have been implemented and would have been higher than their willingness, to pay for the product. “Personalised pricing” may have ambiguous welfare effects, depending on market structure and the trade off between the market “appropriation” effect to consumer with high willingness to pay versus the “market expansion” effect to consumers with a low willingness to pay of targeted pricing.⁹³⁰

Competition law intervention may also be motivated by fairness considerations (value ethics), in particular if personalised pricing is not transparent and thus consumers are not informed, or the need to limit an extensive use by the firms practising algorithmic discrimination of consumers’ sensitive personal data, in view of the purpose limitation and data minimisation requirements in the Data Protection regulation⁹³¹. These practices may also raise more conventional competition law concerns, as they discourage consumer search by making it harder or more expensive to return to buy after a search for alternatives, with the effect that the matching of products to consumers is sub-optimal and that consumers, on aggregate, may finish paying higher prices.⁹³²

929 See the analysis and examples provided in M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 40-41 and the empirical studies they refer to.

930 For a discussion, see OFT1488, *The economics of online personalised pricing* (May 2013), available at http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.of.gov.uk/shared_of/research/of1488.pdf ; M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 43-45.

931 Art. 5(1) of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation – GDPR), [2016] L 119/1. See also Art. 9(1) GDPR and Section 2 of the Data Protection Act 1998 which require the data controller when processing personal data to obtain a specific and explicit consent to process these categories of data.

932 M Armstrong & J Zhou, ‘Search Deterrence’ (2016) 83 *Review of Economic Studies* 26

One may argue that the principle of ‘open market economy’ would require that economic value should be set in the context of a competitive process taking place on a market, where various actors, consumers and suppliers interact through the signals of price. Hence, charging a consumer a personalised price that would correspond to her/his willingness to pay, without him being aware of this and without enabling the specific consumer to benefit from the competitive process taking place at the ‘open market’ and the source of information this may provide so as to enable informed comparison with regard to the situation of other consumers. This is particularly important as one may argue that consumers value the competitive process as such, and not just the fact that the price of a product is within the range of their willingness to pay, which is also something that cannot be set in advance, but essentially cultivated in the context of a market involving continuous interactions between buyers and sellers. That said, it is important to explore if competition law is the best legal instrument to deal with welfare-reducing targeted pricing, or if other alternatives, such as consumer protection law, data protection and privacy rules, anti-discrimination law, unfair commercial practices law, regulation, may prove to be more appropriate, following a detailed comparative institutional analysis.⁹³³

Moving beyond personalised pricing, another implication of personalisation is that firms will be able to develop bespoke products that suit the individual preferences of their consumers without incurring prohibitive costs as they will be able to achieve economies of scale by developing various series of products that could satisfy the entire demand function of the specific consumer in various product categories. In this era of ‘mass personalisation’,⁹³⁴ these new conglomerates will not just control markets in the traditional sense but they will control the personalised markets of individual consumers on whom they hold a superior level of data than other firms. This, in turn, will enable them to cater for the entirety of demands and needs of that individual, for instance, in consumer goods or entertainment. Once a specific amount of data is harvested, these personalised markets will tip with the result that only one firm will have the capabilities to perfectly satisfy the individual consumer’s demand in an array of products. Indeed, consumers will economise their time if they rely on the personalised made-to-order and customised-to-their-preferences offer of one digital platform or reseller that has

933 See, M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 45-47, noting restrictions on personalised pricing from data protection rules (the need to have the explicit consent of the data subject involved), consumer protection rules (disclosure to consumers about the prices and how they are calculated), unfair commercial practices (prohibiting in certain circumstances consumer profiling and considering this as a misleading commercial practice), free movement law (the Services’ directive prohibitions to discrimination based on the service recipient’s nationality or residence), as well as specific regulations on geo-blocking (see Proposal for a Regulation of the European Parliament and of the Council on addressing geo-blocking and other forms of discrimination based on customers’ nationality, place of residence or place of establishment within the internal market and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC, COM(2016) 289 final), or the application of competition law provisions against geo-blocking (see Chapter 2.3.3.3).

934 See, for instance, Deloitte, *Study on emerging issues of data ownership, interoperability, (re-)usability and access to data, and liability*, A study prepared for the European Commission DG Communications Networks, Content & Technology (2016); Industry 4.0, Study for the ITRE committee, European Parliament, (2016).

been able to harvest their personal data and, from that, gain a greater understanding of their individual preferences map. Firms may then be able to organise the production process within their ecosystem. They may do this by limiting access to an individual consumer's profile to a number of firms that they control, either directly or indirectly, and such access will be dependent on this latter firm ensures their products fit the relevant consumer's specific preferences. Even if one assumes that consumer preferences may evolve and that some degree of competition may still be possible, it is clear that mass personalisation will increase demand stickiness and the ability of firms to exploit consumers whilst simultaneously reducing consumer surplus, product variety and consumer choice.

Some of these 'personalised markets' may well appear in the pharmaceutical industry through the development of personalised healthcare, precision medicine and smart healthcare. Changes brought about by developments in digital technology will transform the pharmaceutical and the medical services industries. Data and algorithms are important game-changers as they will enable the development of new 'beyond-the-pills' solutions. Firms will be able to combine drugs, sensors collecting information on the patient's condition and different sorts of data (early R&D data, digital medical records, including diagnostic results, medication history, genomic or gene-expression data, lifestyle data) to develop such solutions. Future medical service providers may be able to 'personalise' patient care, better identify optimal therapies, better predict the patient's response to treatment, as well as engage more fully with physicians, in particular, enabling them to draw from superior insights when making decisions.

The digital revolution will likely transform the pharmaceutical and health service industries beyond recognition in the same way the media, retail, transport and banking industries have been reshaped in recent years. The role of 'personal data', in particular 'genetic data' (such as gene expression data) and 'lifestyle data', in the delivery of personalised medical services and personalised medicine will change the current paradigm, which is very much based on the development of therapies that target an entire population. New digital and/or data-based business models will certainly develop on the basis of competitive advantage in accessing this pool of personal data. This, in turn, will enable the development of health and medical solutions tailored to the characteristics of a specific individual. Hence, it might be expected that the main industrial actors in this area in the future will not only be the pharmaceutical industry and biotechnology companies but also digital intermediaries, which may rely on their superior technological (e.g. algorithms, specialised human resources etc.) and data-gathering capabilities in order to move to the centre of this new emerging health services ecosystem. This move may be based on their own initiative or be done in combination with other firms benefitting from expertise in a specific domain.

In view of the 'intermediation power' some digital platforms may enjoy, to the extent that intermediaries dispose of privileged access to consumer data and/or of 'a significant ability' to steer consumers,⁹³⁵ such platforms may acquire a unique level of access

935 H. Schweitzer, J. Haucap, W. Kerber and R. Welker, "Modernising the Law on Abuse of Market Power", (2017) Report for

to and control over personalised data. This raises concerns over them being the sole source and controller of it in relation to further processes of data monetisation and commercialisation; or of multiple firms being the individual controllers over different sources of data, thus constituting 'data thickets'. The right of access to the data (i.e. through a request to the manufacturer, maker or generator of the data) will certainly constitute an important element in devising the public policy aim that should frame the principles that would apply in each regulatory framework. However, conceiving access to data as a right that any actual (and/or potential) business participant may stumble across raises considerable theoretical and practical difficulties, such as the issues of:

- ownership of this data (i.e. if data may be 'owned'),
- the business practices of firms holding the data limiting or conditioning access to it (i.e. hold-up situations in cases of split ownership),
- this information is subject to moral rights,
- this information is subject to rules concerning inalienability,
- regulatory prohibitions or limits to the sharing of personal data,⁹³⁶ and
- the technical means and way in which access to the specific data will be implemented and the transaction costs inherent in such (these costs are likely to be considerable).

the (German) Federal Ministry for Economic Affairs and Energy. For example, the German Competition Act was amended in 2017; it states that "access to relevant data is a potential source of market power". See also W. Kerber, "Digital Markets, Data, and Privacy: Competition Law, Consumer Law and Data Protection", (2016) *Gewerblicher Rechtsschutz und Urheberrecht Internationaler Teil*, 639-647. There are several authors who purport that holding big data does not equate to market power: G. Colangelo and M. Maggolino, "Big Data as Misleading Facilities", (2017) *Bocconi Legal Studies Research Paper No. 2978465*. Generally, they argue that big data does not create a significant barrier to entry and they base their claims, inter alia, on the non-exclusive and non-rivalrous nature of data and a claimed ease of collecting it, while disregarding many potential entry barriers. Other scholars argue that the harm created by big data pertains mainly to privacy. Yet, these conclusions are based on the limited existing economic studies on big data, which often focus on one specific market (most commonly on search engines or personal data markets). See, for example, Rubinfeld and Gal, (41), 339; D. Tucker and H. Wellford, "Big Mistakes Regarding Big Data", (2014) 6 *Antitrust Source*, 10; M. Ohlhausen and A. Okuliar, "Competition, Consumer Protection, And the Right [Approach] To Privacy", (2015) 80 *Antitrust Law Journal*, 121; J. Cooper, "Privacy and Antitrust: Underpants Gnomes, the First Amendment and Subjectivity", (2013) 20 *George Mason Law Review*, 1129.

936 This is particularly the case for "genetic data", which forms a "special category" under Article 9 of the GDPR. According to Recital 34 of the GDPR, "genetic data should be defined as personal data relating to the inherited or acquired genetic characteristics of a natural person which result from the analysis of a biological sample from the natural person in question, in particular chromosomal, deoxyribonucleic acid (DNA) or ribonucleic acid (RNA) analysis, or from the analysis of another element enabling equivalent information to be obtained". However, this is not the only type of personal data of interest. There is also ample discussion on the issue of the ownership of databases containing such type of data, in particular if this is generated by sensors or machines/algorithms for the purposes of the 'Database Directive' 96/9/EC (i.e. Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, [1996] OJ L 77/20) in view of Article 1(3) of the Directive, which provides that "protection under this Directive shall not apply to computer programs used in the making or operation of databases accessible by electronic means". For a discussion, see Joint Institute for Innovation Policy and Technopolis Group, "Study in Support of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases", (2018) Study for the European Commission DG Communications Networks, Content and Technology.

One should expect that many of the actors operating in the digital pharmaceutical and health services industry will engage in extensive long-term collaborations in reference to the creation, the exchange and trade of data. These collaborations will likely be based on the high level of transaction costs and specificity of data and technological capabilities required by this industry in order for it to flourish. It should also be expected that various industry players will seek to control bottlenecks and, thus, preserve their ability to gain abnormal profits, even after the superior technological capabilities of which they currently dispose have dissipated in view of the diffusion of any necessary and relevant technologies among all players in this new ecosystem.

Indeed, pharmaceutical firms, especially the so-called 'Big Pharma' ones, have traditionally focused on "taking drugs to the market" whilst having, as the basis for their business model, a large patent portfolio consisting of substance and/or process patents. They have traditionally been at the forefront of controlling and driving the (downstream) procedure of obtaining marketing authorisations whilst also managing the (upstream) R&D procedure by purchasing or licensing-in potential successful R&D results from often smaller R&D firms. Now health data and the control of health data will challenge that traditional value chain of taking drugs to the market.

Effectively, the digital transformation has caused both a need and opportunity for pharmaceutical firms to explore new business models, i.e. the logic or framework they use to create and capture value.⁹³⁷ Business model innovation can be particularly challenging in the context of disruptive change especially when there is a lack of clarity as to what the new business model would or should look like,⁹³⁸ and its organisational structure.⁹³⁹ Moreover, the complexity involved in emerging technologies, in terms of both potential problems and solutions, gives rise to a need to connect disciplines and organisations. This will likely lead to more open business models⁹⁴⁰ focusing on joint value creation with complementary partners operating within larger ecosystems.

Future product markets will likely face a paradigm shift when data becomes the starting point of the value chain as pharmaceutical products and medical services will likely be framed according to the genetic and lifestyle data of an individual patient. The vast amounts of collected data will also enable producers to understand what consumers and/or patients value in the pharmaceutical products and medical services they purchase. This will influence the way in which products are designed and developed thereby increasing product quality, which, in turn, should help generate products that, in accordance with preferences revealed by their data, match the relevant buyer's expectations. This could fundamentally alter 'old economy' markets. They would no longer be solely focused on marginal cost and price. Instead, firms would compete on a wider range of

937 A. Afuah, *Business Model Innovation: Concepts, Analysis and Cases* (New York, NY, Routledge, 2014).

938 H. Chesbrough, "Business Model Innovation: Opportunities and Barriers", (2010) 43(2-3) *Long Range Planning*, 354-363.

939 K. Sund, M. Bogers, J. Villarroel and N. Foss, "Managing Tensions Between New and Existing Business Models", (2016) 57(4) *MIT Sloan Management Review*, 8-10.

940 H. Chesbrough and M. Bogers, "Explicating Open Innovation: Clarifying an emerging paradigm for Understanding Innovation" in *New Frontiers in Open Innovation* (edited by H. Chesbrough, W. Vanhaverbeke and J. West, Oxford University Press, 2014), 3-28.

variables. The knock-on effect of the possible personalisation of offers and the dependency of patients on one specific firm, may provide said firm with further sources of monopolistic rents thereby reducing the percentage of the surplus going to consumers.

Health data could, for example, enable the creation of new human health services solutions. The organisation of health services and the production of pharmaceutical products within the same digital eco-system would allow for feedback loops feeding health information back to pharmaceutical companies. These companies would then be able to develop business processes that could respond in real-time in order to improve the effectiveness of the relevant drugs or medicinal products. Such improvements would not be done on the general level of populations but on the specific level of individual patients. Patients would also be given the possibility of becoming more engaged with their health through an array of digital tools that provide them with the possibility of being better informed about their health and making lifestyle changes accordingly and of monitoring their own health and constantly sharing this information with medical experts. Data would become part of a “digital ecosystem that constantly monitors a patient’s condition and provides feedback to the patient and other stakeholders”,⁹⁴¹ and tailors any treatment or therapy required to the patient’s clinical and lifestyle needs.

In the health sector, several firms (claimed ‘proprietors’) hold different types of data. For, example, we have clinical (i.e. patient) data, which is normally held by physicians, and we have clinical trial data held by pharmaceutical firms. Pharmaceutical firms also hold early R&D data. We have public health authorities, insurance firms and specific health data firms (e.g. IMS Health), which hold data regarding the cost and consumption of pharmaceuticals. Further, we have Internet firms like Google, or specific vertical medical search engines, may hold much data about patients’ behaviour, their fears and conduct. If the data collected by these bodies could be anonymised, pooled and combined, that might prove very useful in the fight against all kind of diseases. It may substantially decrease the time currently required for identifying outbreaks of diseases, for developing new drugs or health solutions, for understanding the impact of new drugs, side-effects etc.⁹⁴² Personal health solutions can thus be developed. Indeed, data pools may be very successful in the human medical products and healthcare industry.

Generally, the current situation on data-driven markets is that there are a number of *de facto* data holders, each with a limited set of data. This situation has the potential to lead to market failure because to achieve the best results from any analysis undertaken, either all the relevant firms would need access to all this data or there would need to be one sole firm/provider that would be responsible for such. This is where the need for a federated ‘data commons’ becomes clear; it is necessary to enable interoperability between the various systems put in place by the participants in this ecosystem so that they provide an effective solution for patients. Borrowing the concept of ‘integrated

941 D. Champagne, A. Hung and O. Leclerc, *The Road to Digital Success in Pharma* (McKinsey & Co, 2015).

942 See, for example, P. Groves, B. Kayyali, D. Knott and S. van Kuiken, “The ‘Big Data’ Revolution in Healthcare”, (2013) McKinsey & Company Report for the Centre for US Health System Reform Business Technology Office.

care' from health law,⁹⁴³ the importance of ensuring that data is shared and relied upon so that care becomes responsive to the specific person's needs and genetic characteristics is crucial. Investigations should be undertaken to see whether dynamic efficiencies of 'data aggregation' exist in specific sectors and whether the market is capable of dealing with such. Investigations should also be undertaken to consider whether a federated data commons may be organised in the context of 'data pooling' or organised and closely-supervised in the context of markets for 'data trading' (see our analysis in the context of the IoT in Chapter 10)⁹⁴⁴.

4.4.4. Ecosystems

The shift from competition and value capture to mixed strategies of value capture and value creation, involving strategies of co-opetition, indicates that an additional 'field' of competition-related activity should also be added: that of the 'eco-system'.

Developed in the early 1990s,⁹⁴⁵ the concept of an 'ecosystem' has been defined in broad terms as 'a group of interacting firms that depend on each other's activities'.⁹⁴⁶ Teece notes that a characteristic of eco-systems is their 'co-evolution' in the sense that the 'attributes of two or more organisations become more closely complementary', 'the system being typically reliant on the technological leadership of one or two firms that provide a platform around which other system members, providing inputs and complementary goods, align their investments and strategies'. Teece also notes that 'co-creation' is a characteristic of eco-systems as two or more organisations 'combine forces to pioneer new markets'.⁹⁴⁷ Adner observes that 'the ecosystem is defined by the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialise'. Adner proceeds to define this 'alignment structure' as 'the extent to which there is mutual agreement among the members regarding positions and flows'.⁹⁴⁸ The concept of 'eco-system' has emerged as the dominant idea for depicting the competitive environment in the modern digital economy. The 'eco-system manager' determines the elements of the value chain that will need to be internalised and those which will be supported externally so as to capture value. Most studies on eco-systems focus on the role of the eco-system as a 'hub' of inter-firm relations taking place within the context of a platform, often referred to as the 'lead firm' or 'ecosystem

943 UK Government, "Complying with Monitor's Integrated Care Requirements", (gov.uk, 27 March 2015) <<https://www.gov.uk/government/publications/integrated-care-how-to-comply-with-monitors-requirements/complying-with-monitors-integrated-care-requirements>>.

944 See D. Burk, "Patents as Data Aggregators in Personalised Medicine", (2015) 21(2) Boston University Journal of Science and Technology Law, 233–255; N. Duch-Brown, B. Martens and F. Mueller-Langer, "The Economics of Ownership, Access and Trade in Digital Data", (2017) 1 JRC Digital Economy Working Paper.

945 J. Moore, "Predators and Prey: A New Ecology of Competition", (1993) 71(3) Harvard Business Review, 75.

946 M. Jacobides, C. Cennano and A. Gawer, "Towards a Theory of Ecosystems", (2018) 39 Strategic Management Journal, 2255.

947 D. Teece, "Next-Generation Competition: New Concepts for Understanding How Innovation Shapes Competition and Policy in the Digital Economy", (2012) 9 Journal of Law & Policy, 105–106.

948 R. Adner, "Ecosystem as Structure – An Actionable Construct for Strategy", (2017) 43(1) Journal of Management, 42.

captain', which 'defines the hierarchical differentiation of members' roles and establishes standards and interfaces, a number of formal mechanisms, such as the management of standards and interfaces, platform governance, IP rights etc. forming the 'key tools that hubs use to discipline and motivate ecosystem members'.⁹⁴⁹ However, from a theoretical perspective, a platform eco-system has never been the only option even if, in practical terms, the platform model has become dominant – it is possible to imagine an eco-system in which power is neither concentrated in a hub nor governed by a platform but is distributed among various economic actors and stakeholders who will take decisions by consensus. This model of governance is more frequently associated with blockchain technology.

The essence of this new insight on ecosystems comes from the realisation that competition analysis should engage with the 'value capture' strategies put in place by economic actors competing for strategic or architectural advantage.⁹⁵⁰ These should form the starting point of competition analysis, rather than the relevant market concept which no longer constitutes the sole reference point firms consider when devising their strategies and identifying the competitive constraints to which they are subject. Abandoning solely focusing on the relevant market concept also stems from the relatively more limited role of price competition in the digital economy. Firms often compete for customers in order to (i) enlarge their customer base, and/or (ii) take advantage of network effects and be perceived by financial markets as holding a 'bottleneck', even if such trade, from a price-cost perspective, may not be profitable. This struggle for a large customer base explains why firms continue to offer 'free goods', even if the gains in market share they obtain or their ability to harvest consumer data (personal data being the 'price' to pay for these 'free goods') may not be immediately monetised in data markets. However, capturing a large customer base at reduced or negative profitability is not the ultimate aim of these strategies. This strategy makes sense if, by acquiring a large customer base, firms are able to develop dynamic capabilities in prediction (for instance, the firm may use consumer data to enable it to improve its algorithms), which is of essence in today's 'surveillance capitalism'⁹⁵¹. These benefits do not only materialise in the long-term but may also be enjoyed through a higher market valuation by the financial markets in the short-term.

4.4.5. The behavioural dimension: Market failures at the demand side

The assessment of consumer welfare in competition law relies only on observable behaviour, the 'revealed preferences' of consumers, which are amenable to empirical verification or refutation⁹⁵². The aim is to ascertain an individual's preferences by observing that individual's market behaviour. Assuming, under the consistency principle, a single

949 M. Jacobides, C. Cennano and A. Gawer, "Towards a Theory of Ecosystems", (2018) 39 *Strategic Management Journal*, 2255, 2258-2259 and the literature review provided.

950 D. Teece, "Business Models, Value Capture and the Digital Enterprise", (2017) 6(8) *Journal of Organizational Design*.

951 S. Zuboff, *The Age of Surveillance Capitalism* (Profile Books, 2019).

952 P.A. Samuelson, A note on the pure theory of consumer's behaviour, (1938) 5(17) *Economica*, New Series, 61, 63.

observed choice reveals a stable preference, one could infer the preferences of consumers from the economic choices they make. The welfare analysis in competition law works within a revealed preferences paradigm, when relevant and reliable data on actual purchases are available. The use of quantitative methods (econometrics) enables in this case competition authorities to estimate the elasticities of demand, in particular the cross-price elasticity of demand, which measures the sensitivity of demand for one category of products to the price of another category. However, such data is not often available or not specific enough to estimate the cross-price elasticities of demand for the product(s) in question, in which case properly designed survey methods will measure preferences over hypothetical products and alternatives. In this case, the preferences will be *stated*, as opposed to revealed preferences. The survey method will aim to create a controlled experiment, testing the reaction of consumers to a set of choices that includes the specific product at a low price and another set which includes the same product at a higher price. These discrete methods of surveying choice attempt to mimic the situation of choice faced by the consumer in the real-world, but is a proxy for revealed preferences, assuming that the survey is well designed, the process was conducted so as to assure objectivity, and that a representative sample of consumers to be surveyed has been selected. The approach relies on an axiomatic analysis of preferences.

Behavioural economics has challenged the link between preferences (revealed or stated) and welfare, which forms the basis for the welfare analysis performed in competition law. It cannot be assumed that consumers' choice on the market represents their "true preferences". However, there are at least two caveats with this approach.

First, it does not describe accurately the behaviour of consumers. Research by Kahneman and Tversky showed that human behaviour may be described as the outcome of two different cognitive systems/processes of choice, which inhabit every individual⁹⁵³. In what was called System 1, the individual operates automatically and quickly, with little or no effort and no sense of voluntary control. Decisions are reached through intuition, emotional and affective elements playing an important role in decision-making, which relies on heuristics, thus reducing 'the complex tasks of assessing probabilities and predicting values to simpler judgmental operations'⁹⁵⁴. In System 2, the individual allocates attention to effortful mental activities, including complex computations. System 2 is mobilised when a question arises for which System 1 does not offer an answer or when an event is detected that violates the model of the world that System 1 maintains. The division of labour between System 1 and System 2 is highly efficient as it minimizes effort and optimizes performance. Processing power biases of individuals may push them to a choice overload, where the multiplication of the options offered to consumers may lead to sub-optimal choice⁹⁵⁵, in the sense that consumers may follow rules of thumbs,

953 D. Kahneman, *Thinking, fast and slow* (Allen Lane, 2011).

954 A. Tversky and D. Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, (1974), *Science*, New Series, Vol. 185, No. 4157, 1124.

955 This is the classic problem of "confusopoly". See, P. Diamond, *A Model of Price Adjustment*, 3(2) *J. Econ. Theory* 156 (1971) [if all firms set the same price (monopoly price) no consumer finds it worthwhile to incur the search cost to find the best deal; and if no consumer is informed, then each firm will set the monopoly price to exploit those consumers

for instance imitating what other consumers do rather than make their own decisions, in order to satisfy their preferences. Richard Thaler, one of the main representatives of the behavioural economics movement, makes this clear when he uses the term “quasi-rationality” to denote behaviour that is situated between full rationality and purely irrational behaviour, when people try to behave as if they were fully rational, but they are nonetheless subject to systematic error⁹⁵⁶.

Tversky and Kahneman advanced a theory explaining decision-making under conditions of risk. They argued that most people violate all the axioms of expected utility theory. Their prospect theory is based on psychophysical models and presents a different account, and a more accurate prediction, of how people really behave⁹⁵⁷. They found that people’s attitudes toward risks concerning gains may be quite different from their attitudes toward risks concerning losses. Loss aversion and endowment effect imply that selling prices should be higher than buying prices as the minimal compensation people demand to give up a good is often several times larger than the maximum amount they are willing to pay for a commensurate entitlement⁹⁵⁸. They distinguished between different phases of decision-making. During the *editing/framing phase of decision making*, they observed the influence of framing effects, as choosing an option may be affected by the order or manner in which it is presented to a decision maker and choice can be affected by trivial manipulations in the construction of available options. During the *evaluation phase* in decision-making, the *status quo* serves as an operative reference point and hence has a value function, while a different function, the *weighing* function, measures the impact of the probability of an event on the desirability of a prospect. They advanced the idea that this psycho-scientific framework should be adopted as a basis for investigating individual (economic) behaviour.

Second, the current approach ignores the way preferences were formed at the first place. Research on the foundations of human sociality has found that preferences are not exogenous but that they are shaped by the economic and social interactions of everyday life, thus questioning the foundations of marginal and ordinal theory, which take preferences as a given and a fixed norm that influences decision-making⁹⁵⁹.

who randomly come to it (Diamond’s paradox)]; R. Spiegler, Competition Over Agents with Boundedly Rational Expectations, (2006) 1(2) Theoretical Econ. 207; B. I. Carlin, Strategic Price Complexity in Retail Financial Markets (2009) 3 Journal of Financial Economics 278; M. Armstrong & Y. Chen, Inattentive Consumers and Product Quality, (2009) 7(2&3) Journal of European Economic Association 411; For a general discussion in competition law and policy, see P. Siciliani, Confusopoly: A Special Case of the ‘Oligopoly Problem’ – Implications for Consumer and Competition Policy (UCL, Doctoral Dissertation, 2013).

956 R. H. Thaler (ed.), Quasi-rational Economics (Russell Sage Foundation, 1994).

957 D. Kahneman and A. Tversky, Prospect Theory: An Analysis of Decision under Risk, (1979) 47(2) Econometrica, 263.

958 The loss aversion biases include endowment biases (consumers value something more once they have owned it more than before they own it).

959 J. Henrich, R. Boyd, S. Bowles, C. Camerer, E. Fehr, & H. Gintis, Foundations of Human Sociality: Economic Experiments and Ethnographic Evidence from Fifteen Small-Scale Societies p. 46, noting that “the institutions that define feasible actions may also alter beliefs about consequences of actions and the evaluation of these consequences. For example, a market-oriented society may develop distinct cognitive capacities and habits. The fact that almost everything has a price in market-oriented societies provides a cognitive simplification not available to people in societies where money

This has important implications on the way we conceptualise consumer behaviour in competition law. Thaler suggested that neoclassical price theory of consumer behaviour, which was based on a rational maximizing model describing both how consumers should choose, but also how they do choose, may make systematic errors in predicting behaviour as consumers act in a manner that is inconsistent with the theory. He gave the example of individuals underweighing opportunity costs, or failing to ignore sunk costs (costs they would not be able to recover), as well as their complex search behaviour⁹⁶⁰. From a legal perspective, the quasi-rationality framework and the new positive theory of consumer behaviour proposed by Thaler has far-reaching implications, as it identifies a new form of “market failure”, this time not due to externalities, which identify imperfections of the price system because of a divergence between private (to the parties of a transaction) and public benefits and costs, but due to internalities, that is situations in which people do not internalise all consequences of their actions on themselves because of bounded rationality⁹⁶¹.

Limits in the cognitive capacities of consumers lead them to boundedly rational choices, or as economist Dan Ariely puts it, they act as “predictably irrational”⁹⁶². People tend to make judgments about the likelihood of an event, on the basis of how easily this event comes to mind (the availability heuristic), hence, indicating that prior exposure to a number of events may influence an individual’s subsequent judgments⁹⁶³. Similarity of an event or product may also serve as a cognitive shortcut in decision-making, which explains, for instance, why the package of a generic (store) brand (private label) looks similar to that of an established national brand in order to influence consumers’ choice (the representativeness heuristic)⁹⁶⁴. Ariely advances the concept of “zero-price effect”, which suggests that the usual cost-benefit analysis cannot account for the psychological effect of a free good, consumers perceiving it as intrinsically more valuable than a reduction of the price of the same product from £0,15 to £ 0,01, because of the “affect heuristic” associating free goods with a good feeling, which surfaces automatically when making decisions under System 1⁹⁶⁵. Decisions in risky or uncertain situations

plays a lesser role: namely, allowing the aggregation of disparate objects using a monetary standard as in ‘\$50 of groceries’. To take another example, extensive market interactions may accustom individuals to the idea that interactions with strangers may be mutually beneficial. By contrast, those who do not customarily deal with strangers in mutually advantageous ways may be more likely to treat anonymous interactions as hostile or threatening, or as occasions for the opportunistic pursuit of self-interest”.

960 R.H. Thaler, *Towards a Positive Theory of Consumer Choice*, (1980) 1 *Journal of Economic Behavior and Organization* 39.

961 See also OFT1228, *What does Behavioural Economics Mean for Competition Policy?*, (March 2010), 10, (indicating that “behavioural biases can be viewed simply as a fourth type of market failure”, in addition to market power, asymmetries in information between consumers and firms and externalities.

962 D. Ariely, *Predictably Rational* (Harper Collins, 2008).

963 A. Tversky & D. Kahneman, *Judgment under uncertainty: Heuristics and biases*. (1974) *Science (New Series)*, 185, 1124.

964 D. Kahneman & A. Tversky, *Subjective probability: A judgment of representativeness*. (1972) 3 *Cognitive Psychology*, 430; F.R. Kardes, S.S. Posavac & M.L. Cronley, *Consumer inference: a review of processes, bases, and judgment contexts*, (2004) 14(3) *Journal of Consumer Psychology*, 230.

965 K. Shampanier, N. Mazar, & D. Ariely, *Zero as a special price: The true value of free products*, (2007) 26 *Marketing Science*, 742; On the affect heuristic, see M. L. Finucane, A. Alhakami, P. Slovic, & S.M. Johnson, *The affect heuristic in judgments of risks and benefits*, (2000) 13 *Journal of Behavioral Decision Making*, 1.

are often influenced by anticipatory feelings and emotions experienced in the moment of decision-making⁹⁶⁶. Humans are also averse to change and exhibit a status quo bias, the formation of a habit making it difficult to disengage, unless the incentive to do so is strong. However, this may indicate that higher prices may not be enough for consumers' to switch their existing suppliers, procrastination and inertia eventually limiting their ability to exercise an active choice⁹⁶⁷. Of particular interest is also the fact that human beings often attach more importance to present events than future events, discounting future benefits for actual benefits. Thus discounting is non-linear and its rate may vary over time. Time inconsistency bias may also manifest itself by the impossibility to predict accurately our preferences in the future⁹⁶⁸. Preferences are context-dependent, the framing of the choice exercising an important influence over the decision of consumers⁹⁶⁹.

Hence, consumers do not make decisions in isolation, in order to satisfy their given preferences, but are also embedded in social environments, which inevitably influence, one might even say construct their preferences⁹⁷⁰. Because of these broader social preferences that often frame individual ones, people show that they prefer fairness and reciprocity over inequality and pursuing one's own self-interest⁹⁷¹. It is not only monetary incentives that count, but also people's perception of self, in other words, their social identity⁹⁷². Preferences are influenced by social roles, and more broadly social norms, which vary across cultures and contexts. Preferences may even follow choice, instead of guiding it, the order of preferences aiming mainly to rationalize/justify actions after the fact.

It was reported in several markets that behavioural biases may limit consumers' ability to switch to the best supplier⁹⁷³. Similar issues may also arise in digital markets, where the choice of the consumers is any case subject to the choice architecture of their smart-phone screen, thus raising the risk of manipulation. Choice architecture may even be

966 The risk as feelings model of decision-making: G. Loewenstein, *Emotions in economic theory and economic behaviour*, (2000) 90(2) *The American Economic Review* 426G. Loewenstein, E.U. Weber, C.K. Hsee, N. Welch, *Risk as feelings*, (2001) 127(2) *Psychological Bulletin* 267.

967 D. Kahneman & A. Tversky, *The psychology of preference*, (1982) 246 *Scientific American* 160; W. Samuelson & R.J. Zeckhauser, *Status quo bias in decision making*, (1988) 1 *Journal of Risk and Uncertainty*, 7.

968 OFT1228, *What does Behavioural Economics Mean for Competition Policy?*, (March 2010), 6, "The time inconsistency biases include: projection bias (consumers expect that they will feel the same tomorrow as they do today); over optimism (consumers over estimate how much they will use a good, or underestimate how much it will cost them); and hyperbolic discount biases (consumers value today disproportionately greater than tomorrow".

969 D. Kahneman & A. Tversky, *Choices, Values and Frames*, (1984) 39(4) *American Psychologist* 341.

970 S. Lichtenstein & P. Slovic (eds.), *The Construction of Preference* (CUP, 2006).

971 E. Fehr & S. Gächter, *Fairness and Retaliation: The economics of reciprocity*, (2000) 14 *Journal of Economic Perspectives* 159.

972 G. Akerlof & R. Kranton, *Identity Economics* (Princeton University Press, 2010).

973 C. M. Wilson & C. Waddams Price, *Do Consumers Switch to the Best Supplier?*, (2010) 62(4) *Oxf. Econ. Pap.* 647; In a subsequent report the OFGEM noted that two third of consumers' energy accounts are with one of their ex-monopoly electricity suppliers, which provides evidence of a status quo bias and time inconsistency: *Ofgem Discussion Paper: What can behavioural economics say about GB energy consumers?*, March 2011, available at http://www.ofgem.gov.uk/Markets/RetMkts/rmr/Documents1/Behavioural_Economics_GBenergy.pdf.

more tightly controlled in the future in the context of voice technology, to the extent that there is a higher risk of ‘manipulation’ and reinforcing consumer bias in the context of a voice-based recommendation than when the user is at least offered the possibility to choose among various options on a smartphone’s or tablet’s screen⁹⁷⁴, although this risk has not materialised yet as voice assistants are presently used for simple operations⁹⁷⁵.

The manipulative dimension of targeted advertising practised by digital platforms also hints to a process of value generation and capture in the digital era that is in many respects different from that of industrial capitalism. As Zuboff explains, the ‘invention of targeted advertising paved the way to financial success, but it also laid the cornerstone of a more far-reaching development: the discovery and elaboration of surveillance capitalism’⁹⁷⁶. Data are of course the raw material that are necessary for ‘surveillance capitalism’s novel manufacturing processes’. During the initial stage of the development of digital capitalism, digital platforms, collect behavioural data tracking the behaviour of users, which, with the help of analytics leads to improvements in the services provided by the platforms, which compete with each other in order to take advantage of network effects and manage to tip the market in their favour. In this intense competitive struggle platforms compete in order to gain the highest possible market share, if need be by luring users providing them services at zero or even positive prices and rewards. This often explains why the digital platforms in this initial stage not only do not make profits but have suffered significant losses and have been dependent on the support of financial investors. The latter were attracted by the prospects of the digital platform to emerge as the winner if this competitive struggle for the market. This is of course part of the story, as at the same time the digital platforms participate to the ‘winner takes most’ competition in these ‘zero-priced’ markets, they are harvesting a considerable amount of data, not always with the aim to recycle this for the benefit of their users with service improvements, but with the aim to constitute what Zuboff calls ‘behavioral surplus’⁹⁷⁷. This is often camouflaged as ‘digital exhaust’ or ‘digital breadcrumbs’, presented as the equivalent of industrial waste and the necessary leftover from the production process, that for efficiency purposes should not be left into the ‘atmosphere’ but captured in order to be recycled in ‘useful data’. All content becomes a source of this behavioural surplus: the behaviour of people tracked, ‘their patterns of connection, communication, and mobility, their thoughts and feelings, and the meta-data expressed in their emoticons, exclamation points, lists, contractions, and salutations’⁹⁷⁸. Computer mediation is thus repurposed on ‘extraction architecture’, where a number of devices, fixed, portable and wearable technology, soon to become invisible through nanotechnology and bio-hacking.

974 M. Stucke & A. Ezrachi, *The Subtle Ways your Digital Assistant May Manipulate You*, Wired (29 November 2016), available at <https://www.wired.com/2016/11/subtle-ways-digital-assistant-might-manipulate/>. See also, <https://econsultancy.com/how-will-voice-technology-change-consumer-behaviour/>

975 See, PWC, *Consumer Intelligence Series: Prepare for the voice revolution* (2018), available at <https://www.pwc.com/us/en/advisory-services/publications/consumer-intelligence-series/pwc-voice-assistants.pdf>.

976 S. Zuboff, *The Age of Surveillance Capitalism* (Profile Books, 2019), 65.

977 Ibid., 81.

978 Ibid., 112.

The industrial waste metaphor does not adequately portray the real purpose of harvesting this data, which is driven by a 'full-blown logic of accumulation'. This logic takes different forms. First, it serves the construction of a dynamic online advertising marketplace, where digital platforms auction to advertisers, not the attention of the users as such, as these are still free not to click through the ad, but 'derivatives of behavioral surplus' on the basis of behavioral predictions made by Google as to the likelihood that a specific user will click through the ad and proceed to a purchase⁹⁷⁹. As Zuboff explains 'users were no longer ends in themselves but rather became the means to other' ends⁹⁸⁰. Digital platforms share these 'surveillance assets' with the partners in their ecosystems, or commercialise them in order to gather 'surveillance revenues' that are then accumulated in 'surveillance capital'⁹⁸¹. However, 'advertising is 'the beginning of the surveillance project, not the end'⁹⁸². The data is, indeed, used in order to develop the digital platforms' evolving AI capabilities. These enable them to make better predictions about the individuals' future behavior and to develop specific prediction products which are offered into new kind of markets trading exclusively in future behavior. As Zuboff explains '(s)urveillance capitalism's profits derive primarily from these 'behavioral futures markets'⁹⁸³. In this surveillance capitalism era, monopolies and bottlenecks are not constituted with the aim to raise prices, as traditional neoclassical theory assumes, but in order to 'corner' 'user-derived raw material supplies' and protect 'critical supply routes for the unregulated commodity that is behavioural surplus'⁹⁸⁴. Competitive struggles are not just for market shares in delimited markets, but for dominance of the dispossession cycle and the generation of behavioural surplus that will itself be highly valued in behavioural futures markets. This 'dispossession cycle' relies on incursion practices into 'undefended spaces' (a laptop, an email to a friend, a web page, the street you live), undefended because of the expectations that these will be unobservable to a third party and therefore out of the commodification and market logic, in order to 'kidnap' behavioural surplus⁹⁸⁵. It then develops because of an 'habituation' process, in which, these practices of incursion become normal and are 'rapidly bolstered by growing ecosystems of stakeholders'⁹⁸⁶. Should social tensions arise, digital platforms adapt and redirect the practices in larger projects of surveillance, for instance the Google maps project evolving to a more spectacular project of incursion with the development of the self-driving car or Google cities⁹⁸⁷. The surveillance capitalists omnipresence and superior capabilities to predict will turn them to 'copilots' of our lives, predicting where and when a person might spend time, and making the adequate recommendations, or

979 Ibid., 83.

980 Ibid., 88.

981 Ibid., 94.

982 Ibid., 96.

983 Ibid.

984 Ibid., 133.

985 Ibid. 139.

986 Ibid., 140.

987 Ibid., 153.

trading these behavioural futures in real time⁹⁸⁸. The market frontier is pushed to the extreme, all predictable behaviour becoming a source of behavioural surplus. In this world, 'unpredictable behaviour is the equivalent of lost revenue'⁹⁸⁹.

These 'behavioral futures markets' will be personalized, to the extent that more than just personal data, the surveillance capitalists will trade 'human consciousness' that will be the next territory of commodification, after that of land, labour, personal information and attention, the extraction architecture reaching further and deeper into 'new territories of human experience'⁹⁹⁰. This conquest relies on the asymmetrical bargaining power of digital platforms, on which an increasingly important part of the population depends in its day-to-day life for work and entertainment, the take it or leave it strategies they adopt, the manipulation of the choice architecture in order to further their capacity to extract behavioural surplus. The 'prediction imperative' pushes also the boundaries of what can be considered as a voluntary exchange to the extent that the digital platforms devise 'means of behavioural modification'⁹⁹¹ through nudging, herding and other forms of influence, a new 'execution architecture' with the aim to generate surveillance revenues by challenging the individuals' 'elemental right to the future tense'⁹⁹². Zuboff argues that 'we now face the moment in history when the elemental right to the future tense is endangered by an pervasive digital architecture of behaviour modification owned and operated by surveillance capital, necessitated by its economic imperatives, and driven by its laws of motion, all of the sake of its guaranteed outcomes'⁹⁹³. As all behaviour becomes predictable, the surveillance capitalists may trade this newly acquired capacity of certainty for profit⁹⁹⁴. Individual autonomy, and the potential of unpredictable behaviour, becomes a 'friction' and a threat to surveillance revenues⁹⁹⁵.

Much of the data collected relates to the digital identity of the consumer and enables companies to draw a pretty accurate individual preferences map and personality traits for each of their clients from even small samples of data and meta-data.

In the era of "machine learning" and Artificial intelligence-assisted pricing the risks of "digital" consumer manipulation may admittedly increase at an industrial scale.⁹⁹⁶ Digital markets exacerbate the above risks, in view of the possibilities they offer of "a vast psychological audit, discovering and representing the desires of society"⁹⁹⁷ and of each individual separately, offering sophisticated evaluation methods that are closely linked to the direct observation of consumer preferences, but also more broadly of a whole range of preferences expressed in social, and private life, through the means of socio-

988 Ibid., 154.

989 Ibid.

990 Ibid., 175.

991 Ibid., 203.

992 Ibid., 195.

993 Ibid., 332.

994 Ibid., 212.

995 Ibid., 241.

996 R Calo, 'Digital Market Manipulation', (2014) 82 George Washington Law Review 995.

997 W. Davies, *The Happiness Industry: How the Government & Big Business Sold Us Wellbeing* (Verso, 2015).

metric analysis⁹⁹⁸. As mentioned before, Big data enable us to observe, allegedly more accurately, the inner mental states of people and potentially influence the way these form their core preferences. Indeed, “personality correlates” can now be identified that predict the precise ways in which each customer will react to marketing efforts⁹⁹⁹. Emotion detection becomes possible through the emergence of ‘affective computing’, ‘computing that relates to, arises from, or influences emotions’, any conscious, or even unconscious emotion becoming observable behaviour for coding¹⁰⁰⁰. ‘Emotion scanning’ will become the new form of tracking to which are subject users¹⁰⁰¹. ‘Instrumentarianism’, ‘the instrumentation and instrumentalization of behaviour for the purposes of modification, prediction, monetization and control’¹⁰⁰².

Such manipulative potential and of course the possibility that this may occur at a larger scale, in view of the possibilities offered by algorithms, data analysis and artificial intelligence, is clearly motivating digital platforms’ commercial strategies to accumulate behavioural surplus and extract value from it.

These various possibilities of manipulation in digital capitalism call for collective action even if the preferences ‘revealed’ by consumer choice do not indicate the existence of a competition law problem. Competition authorities should be aware of the possibilities of manipulation and should not take for granted that the analysis of the revealed preferences of consumers in defining relevant markets, for instance examining the substitutability of a product vis-à-vis another, will reveal the real boundaries of actual competition. They should envisage that these preferences as revealed or inferred by actual consumer choice may not be the ones consumers really have. This may require a more holistic perspective in competition law taking into account stated preferences as well as evidence of the hypothetical extended preferences of consumers/citizens, as these are revealed in their behaviour in other spheres of their life. This may be easier in the future with the development of sociometrics technologies on the basis of Big Data.

4.5. Moving beyond traditional definitions of market power

The complexity of competition in the digital economy and the different fields on which it takes place raise important challenges as to the prevailing conception of market power used in competition law and economic analysis, which may appear as myopic and not taking into consideration the various dimensions of the competitive game (financialisation, the importance of technological assets and resources, strategies of differentiation and single-homing, exploitation of consumer behavioural biases). In view of the fact that in the economic approach currently followed the existence of some form of market failure is required in most cases in order to trigger enforcement activity by the State, it is

998 Ibid.

999 S. Zuboff, *The Age of Surveillance Capitalism* (Profile Books, 2019), 277.

1000 R. W. Picard, *Affective Computing*, M.I.T Media Laboratory Perceptual Computing Section Technical Report No. 321, available at <https://affect.media.mit.edu/pdfs/95.picard.pdf>.

1001 S. Zuboff, *The Age of Surveillance Capitalism* (Profile Books, 2019),

1002 Ibid., 352.

crucial to develop a concept of economic power that takes into account these various dimensions of the competitive game and enables competition law, or other instruments, to achieve the goals set by the policy makers.

Box 4.6. Assessing market power in digital markets: Does access to personal data constitute an important source of market power?

BR CADE usually employs its traditional toolkit to assess market power in the digital economy. When it comes to multi-sided markets, although there is no explicit guide or legislation, there are some particularities that should be taken into consideration, as pointed out by the academic literature and past cases analysed by CADE. For example, interdependent groups of customers that a platform serves and how the uneven effects to these groups deriving from anticompetitive behaviour.

Further, the Brazilian NCA has been paying special attention at the use of data in a way that might unduly restrict competition by companies of the digital economy. In the case *Google vs. Buscapé/Bondfaro*, CADE discussed how big data has become a relevant competitive factor, enabling companies to leverage assets and to extract value from the data to which they have access, by selling information about consumers' patterns and behavior to advertisement companies. In 2016, CADE analyzed a case in which Brazil's leading banks formed a joint venture for credit scoring. Credit scoring companies are multi-sided markets with strong network effects. Financial institutions are the main suppliers of inputs (information about users' financial transactions) to credit bureaux, while they are also the main consumers of the bureaux's products (credit scores). Thus, CADE was concerned the operation would lead to vertical integration. In this case, CADE analyzed whether data (information about consumers) might act as an entry barrier. When data is also a source of market power, a dominant platform can leverage its userbase in order to prevent potential competitors to enter the market, which might lead to market foreclosure. CADE highlighted the risks of foreclosure in both the markets of positive and negative credit scoring, due to the great number of consumers' data held by the proposing banks. Accordingly, one of the remedies agreed by the parties was the commitment that the banks would continue providing data to all credit bureaux, with no discrimination or provision of favorable treatment to their own bureau.

Personal data about user's preferences and characteristics are crucial to inform the creation of content that is better tailored to people's interests and for the development of more efficient products and services. Information harvested by internet companies, thus, can contribute to the reduction of production costs and to quality improvement in such markets. In contrast, precisely because collection and processing of data are determinants of which companies can compete and thrive in digital markets, restrictions in access to data can often lead to a decrease in competition. Lack of data can prevent companies from building a critical database, or from offering goods and services at competitive levels, which makes them less likely to survive in data-driven markets, leading to a decrease in competition.

RU The FAS Russia was dealing with the concept of market power when considering the Bayer/Monsanto merger. Remedies for Bayer/Monsanto merger were drafted taking into account the big data (including the historical data) on climatic, soil and other conditions around the globe. The FAS Russia assumed that having the mentioned data is crucial for business successful development.

That is why the FAS Russia ruled to provide non-discriminatory access to data for the Russian players of agro technological market. Also, the FAS Russia considered cases in relation to big corporations which has access to big amounts of personal data (Google, Apple, Microsoft). At the same time, up to the moment the access to personal data has never been an argument in the antitrust cases considered by the FAS Russia.

CN There are no cases so far concerning operators in the digital platform who enjoy “market power”. According to Article 11 of the Interim Provisions on Prohibiting Abuse of Dominant Market Positions, which will be implemented on September 1, 2019, when determining whether the entity has a dominant position in digital economy, regards can be made to the competitive characteristics of relevant industry, business models, and number of users, network effects, lock-in effects, technical characteristics, market innovation, ability to master and process relevant data, and market power of entities in related markets.

Source: BRICS NCAs Questionnaire

4.5.1. Conceptualizing power in the digital economy: a theoretical perspective

Sociologists and economists have developed different approaches to the concept of power. If for economists, markets are primarily processes for price formation, the price helping to allocate scarce resources in an efficient manner, (market) power being the ability to increase prices and consequently to allocate scarce resources in an inefficient manner, sociologists focus on social relations and institutions in markets, analysing the way market actors interact with each other when producing or exchanging products.¹⁰⁰³ The potential for each of these approaches to deal with vertical, as opposed to horizontal power varies.

From a sociological perspective, in Max Weber’s classic definition, power denotes a situation in which there is “probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests”.¹⁰⁰⁴ This definition may present various problems in view of the focus on the volitional element, the “will” of a specific actor, as opposed to the “resistance” of another, thus indicating that some form of coercion is exercised on one actor by another. The concept of coercion is notoriously complex and ambiguous. Most theoretical accounts of coercion appear to be either over- or under-inclusive.

The absence of alternative “reasonable choices” can easily entail a conception of coercion that is too narrow, particularly as applied to exercises of market power. Such a narrow understanding of coercion is advanced by Friedrich A. Hayek. Hayek takes the difference between a free man and a slave as his heuristic starting point in order to argue that “[c]oercion occurs when one man’s actions are made to serve another man’s will, not for his own but for the other’s purpose [...] Coercion implies, however, that I still

1003 For a discussion, see M. Grannoveter, *Society and Economy: Framework and Principles* (Harvard University Press, 2017), 91; R. Swedberg, *An Introduction and Agenda*, in V. Nee & R. Swedberg (eds.), *The Economic Sociology of Capitalism* (Princeton University Press, 2005), 4, 11.

1004 M. Weber, *The Theory of Economic and Social Organization* (1947, Free Press, first published 1922), 152.

choose but that my mind is made someone else's tool, because the alternatives before me have been so manipulated that the conduct that the coercer wants me to choose becomes for me the least painful one."¹⁰⁰⁵ Consequently, Hayek argues that substantial market power or monopoly could rarely result in true coercion. A monopolist could only exercise true coercion if he where, for example, the owner of the only spring in an oasis, leaving other settlers no choice but to do whatever the spring owner required of them if they want to survive.¹⁰⁰⁶ Hayek's conception of coercion is thus clearly unhelpful, as it would only cover threats to deny goods that are crucial to one's existence.¹⁰⁰⁷

By contrast, a broader understanding of the absence of reasonable choices would entail that an extremely tempting offer, such as sharing the profits of a long-term joint venture, may be considered as exercising a pressure similar to a conditional threat by a monopolist of a scarce resource to deny access to this facility at a reasonable rate, to the extent that in both cases the presumed "coercer" is manipulating the incentives (or opportunity costs) that the presumed "coercee" associates with various courses of action, but one may not want that to be considered as a form of economic coercion, as this would eventually lead to a quite broad interpretation of the term, eventually including also situations of mutually beneficial cooperation.

To the extent that the voluntary, or not, character of an exchange may not constitute an adequate criterion to define (economic) power, it may be more relevant to focus on indirect methods of observing power, such as the *process* through which economic power is manifested as well as its various *sources* or various *manifestations* of power deemed relevant for the specific circumstances.

Process-based definitions of power focus on the bargaining process and aim to identify situations in which there is some form of asymmetry or inequality on the ability of the actors to influence each other's course of conduct. In economics, the analysis of bargaining power is intrinsically related to the issue of how actors may divide the joint gains resulting from their cooperation, the so called bargaining problem. Bargaining power will conventionally refer to the relative share of the total surplus gained by an actor in the bargaining problem. What matters is not the distributive outcome as such, for instance that each participant enjoys an equal share of the joint profit, but the fact that each participant has been able to get a payoff equivalent to their next best alternative. Absent this rent from the joint surplus collected by the participants, these will have no incentive to enter into the joint activity at the first place.

Dominant conceptions of economic power also link power to dependence, as 'someone who controls resources that you value has power over you – can cause you to modify your behavior in an attempt to obtain more of those resources than otherwise'¹⁰⁰⁸. Hence, power in the economy may derive from 'dependency arising from some par-

1005 Friedrich A. Hayek, *The Constitution of Liberty* (University of Chicago Press 1960), 133.

1006 Ibid, 136.

1007 See e.g., Ellen Frankel Paul, "Hayek's Conception of Freedom, Coercion, and the Rule of Law" (1980) 6 Reason Papers 37-52.

1008 M. Granovetter, *Society and Economy* (Belknap Press of Harvard University press, 2017), 92.

ticular distribution of resources¹⁰⁰⁹. The situation of resource-dependence between two firms may precede their business relationship, coincide with their relation and the contract that incepts such relationship, or arise in the implementation of the relation. We may have a situation of unbalance in the business relationship between two firms, which makes impossible or excessively difficult for one to continue with the business without the other, because of a high degree of interdependence between them, this being seen as equivalent to some form of intra-organizational relation between them. The conceptualization of such relations as forming part of a value chain contributes to this "intra-organizational" understanding of their interdependence. We may have, on the other hand, a resource-dependence created by market conditions precedent to the stipulation of the relation, which forced one of the parties to accept the terms imposed by the dominant firm(s) and undertake specific investments or actions.

Power differentials between the parties to an exchange may not only be assessed on the basis of the individual characteristics of the actors in a dyadic relation, such as the control of a superior technology or that of an indispensable input for the production process, but may also relate to the broader social structure of the exchange, such as the position of the specific entity in the social network to which it is embedded (positional power). As Willer explains, 'power as potential is located in structures', '(s)ubsequently, actors in structures produce power as activity'¹⁰¹⁰. Cook et al., in particular, has focused on the network position of the economic actors in order to determine the power-dependence not in the context of a dyadic relation, but in the context of a network¹⁰¹¹. The topography of networks is particularly important in view of 'the tendency of complex systems to create asymmetric network structures, in which some nodes are 'hubs,' and are far more connected than others'¹⁰¹². Centralised networks provide actors with the necessary levers to extend their influence and thus reach sooner the tipping point towards sustainable dominance, eventually using the networks for their own purposes rather than those that led to the formation of the network at the first place.

Taking a sociological perspective, Cook et al. focus on social structure as a possible source of power, social structure being a configuration of social relations and positions among actors, 'where the relations involve the exchange of valued items (which can be material, informational, symbolic, etc.)'¹⁰¹³. These relations are not only linking actors directly, but also indirectly¹⁰¹⁴. An exchange relation may not thus not only occur

1009 Ibid., 94.

1010 D. Willer, Predicting power in exchange networks: a brief history and introduction to the issues, (1992) 14 *Social Networks* 187.

1011 K.S. Cook, R.M. Emerson, M.R. Gillmore, T. Yamagishi, The distribution of power in Exchange Networks: theory and experimental results, (1983) 89(2) *American Journal of Sociology* 275 (hereinafter Cook et al. 1983) K.S. Cook & J.M. Whitmeyer, Two approaches to social structure: exchange theory and network analysis, (1992) 18 *American Review of Sociology* 109 (hereinafter Cook et al. 1992).

1012 See also, A.-L. Barabási & R. Albert, Emergence of Scaling in Random Networks, (1999) 286 *Science* No. 5439, 509; M. E. J. Newman & J. Park, Why Social Networks are Different from Other Types of Networks, (2003) 68 *Physical Review E*, No. 036122 (2003), 1.

1013 Cook et al. 1993, 110.

1014 See, P.M. Blau, *Exchange and Power in Social Life* (Wiley, 1964).

directly between two actors, but relate to more complex exchange networks, viewed as ‘connected sets of exchange relations’¹⁰¹⁵. This calls for an analysis of resource dependence in the context of a network, with the assistance of social network analysis that focuses on the patterns of interaction between actors. Networks analysis forms part of structural analysis, to the extent that it aims to explain phenomena primarily, if not completely, by social structure, however, it cannot only be subsumed to structuralism, to the extent that it also explores the creation and/or maintenance of networks, as well as also emphasizes the role of the individual actors and their strategies, thus bringing to the picture exchange theory¹⁰¹⁶.

In the complex, digital economy, power may take various dimensions than the simple reduction of output (and increase of prices) on which focuses the concept of market power traditionally used by competition law. Hence, there is need to enrich the dimensions of economic power considered in competition law. The next Section will examine whether the traditional concept of horizontal market power may be appropriate for the digital economy, or if it has to be supplemented by other concepts of economic power that take better account of vertical competition.

4.5.2. Is the traditional concept of horizontal market power fit for purpose in the digital economy?

The emphasis put over control over access to data in the digital economy has led a number of competition authorities to re-conceptualise their traditional conception of market power by integrating this data access dimension. For instance, a recent study commissioned by the German Ministry of Economics and Energy¹⁰¹⁷ observes that control over data can be analysed either as superior (comparatively to other horizontal competitors) market power (‘relative’ market power targeted by 20 (3) GWB), or as a source of relational market power in the context of vertical relations, for instance in IoT and after-markets contexts (which can be targeted by 20 (1) GWB). The study even notes that the control over access to data constitutes a more important criterion for the finding of a dominant market position than the financial capabilities of the undertaking (which is criterion relevant for the finding of a dominant position pursuant to § 18 Abs. 3 Nr. 2 GWB) since the financial resources are already subject to competing alternative use through functioning capital markets, while liquid markets for data are still absent and that, in so far as personal data is concerned, the GDPR may prevent the emergence of such liquid data markets from the outset.

1015 Cook et al. 1993, 113 referring to the work of R.M. Emerson, Exchange theory, part II: exchange rules and networks, in J. Berger, P. Zelditch & B. Anderson (eds.), *Sociological Theories in Progress* (Vol. 2, Houghton Mifflin, 1972), 58.

1016 Cook et al. 1993, 114.

1017 Bundesministerium für Wirtschaft und Energie, *Modernisierung der Missbrauchsaufsicht für marktmächtige Unternehmen* (September 4th, 2018), available at <https://www.bmwi.de/Redaktion/DE/Publikationen/Wirtschaft/modernisierung-der-missbrauchsaufsicht-fuer-marktmaechtige-unternehmen.html> (hereinafter *Modernisierung Study*).

This quest for flexibility in conceptualising power conducive to competition law enforcement leads competition authorities to go beyond the traditional perspectives of selling or buying power, first in order to integrate the futurity dimension of the digital economy (the emphasis on innovation), but also in order to be able to bring within the remit of the enforcement activity competition authorities market failures resulting from information asymmetries or more generally bargaining power that are not usually considered as normally falling within the scope of competition law.

4.5.2.1. Selling power

Neoclassical economics is based on resource scarcity. Scarcity entails that any choice as to how resources get allocated – as a result of decisions made by individuals, firms and/or the state – must reckon with the idea that there are alternative uses that would yield valuable outcomes. In economic jargon, the best alternative use corresponds to an ‘opportunity cost’, which the decision maker would want to factor in when choosing how best to allocate what he is endowed with. Ultimately, society would want to adopt an allocation mechanism that is capable of maximising the benefits from consumption of scarce resources over the long term.

Markets, though, are not faultless. As competition authorities have recently converged towards a ‘consumer welfare’ paradigm, however fuzzy its definition is, the focus has been on market power at the selling side (selling power), whereby competitive rivalry is lessened so that consumers are left with little choice than to buy on the conditions (price or non-price) imposed by the firm(s) holding market power. Hence, the idea is the important thing is that market power may impact on consumers (intermediary or final). Under these circumstances, consumer detriment might arise due to higher prices (leading to lower quantity sold), lower quality and variety on offer. Competition law, with its various provisions, is meant to address such market failures in order to preserve well-functioning markets by either protecting (through ex-ante intervention and indirect deterrence), or reinstituting (through ex-post intervention and direct deterrence) competitive rivalry.

The inherent ambiguity in what underpins a position of substantial market power means that intervention under competition law is triggered primarily where market power is likely to be significantly increased through external growth, such as via mergers, joint ventures or other forms of coordination among firms. Moreover, enforcement can also be triggered where an alleged conduct undertaken by an already dominant firm is likely to entrench its position of substantial market power by cutting out rivals from a large chunk of the addressable market. The idea is that, absent the alleged conduct, the large portion of demand served by the dominant firm would have been more ‘contestable’; that is, the alleged conduct has made it more difficult for customers to be able to switch to a rival’s product if they so preferred.

4.5.2.2. Buyer power and monopsony

A typical definition of buyer power is the following one provided by Roger Noll:

“[B]uyer power” refers to the circumstances in which the demand side of a market is sufficiently concentrated that buyers can exercise market power over sellers. A buyer has market power if the buyer can force sellers to reduce price below the level that would emerge in a competitive market. Thus buyer power arises from monopsony (one buyer) or oligopsony (a few buyers), and is the mirror image of monopoly or oligopoly¹⁰¹⁸.

In the standard model of monopsony, the supply side of a market is perfectly competitive and is represented by an upward-sloping supply curve. As a mirror image of a monopolist’s behaviour, a monopsonist can take advantage of his market power by reducing his demand. The lower price obtained by the buyer reflects the lower marginal cost of supply.

What are the competitive effects of buyer power and monopsony power¹⁰¹⁹? With regard to the upstream side, as the monopsonist restricts its input purchases to reduce prices below competitive levels, there might be allocative inefficiency and the buyer may extract supplier surplus. With regard to the downstream side, there is no allocative inefficiency if the monopsonist discriminates perfectly. Consumers do not benefit though from reduced input prices as these do not lead to reduced output prices that are passed to output buyers, to the extent that “the monopsonist may control the *price* it pays for an input but cannot control the *quantity* of the input offered for sale at that price”¹⁰²⁰. Buyer power may also result in “waterbed effects” or “spiraling effects”. The “*waterbed effects*” may result, for instance, from the fact that buyer power could lead to a reduction of marginal costs and lower input prices for the entity with buyer power, which sees its output rising, while at the same time buyer power raises the input prices of the competitors of the entity which do not dispose of buyer power, as the reduction of prices has to be passed on to someone else, which may lead them to increase their prices, thus affecting the final consumers.¹⁰²¹

Although monopsony is considered as the mirror image of monopoly, buyer-side conduct is regularly treated more leniently than equivalent conduct on the selling side. This relies on the idea that serving large buyers may involve lower distribution costs and lower production costs, leading to important discounts, as the larger the buyer the more

1018 R G. Noll, ‘Buyer Power’ and Economic Policy’, (2005) 72 Antitrust Law J. 589.

1019 For a detailed analysis, see R D. Blair & J L. Harrison, Monopsony in Law and Economics (Cambridge University Press, 2010).

1020 J L. Harrison, Complications in the Antitrust Response to Monopoly, in I. Lianos & D. Sokol (eds.), The Global Limits of Competition Law (Stanford University press, 2012), 54, at 58.

1021 On the “waterbed effects,” see, R Inderst & T Valletti, ‘Buyer Power and the “Waterbed Effect” (2011) 59(1) Journal of Industrial Economics, 1-20; P Dobson & R Inderst, ‘Differential Buyer Power and the Waterbed Effect: Do Strong Buyers Benefit or Harm Consumers?’ (2007) 28(7) ECLR, 393-400; A. Majumdar, Waterbed Effects and Buying Mergers, CCP Working Paper 05-7 (2007).

credible would be its threat to integrate backwards and produce the good itself¹⁰²².

One may also distinguish between buyer power, which denotes the ability of buyers to obtain advantageous terms of trade from their suppliers and countervailing power, which characterizes the presence of strong buyers mitigating or even fully averting adverse consequences for consumer surplus or total welfare that would otherwise arise from the exercise of market power at the supply side. Countervailing power on the buyer side may be an important force offsetting suppliers' increased market power¹⁰²³. The economic analysis of bilateral monopoly or oligopoly, the situation where a lawful monopolist confronts a lawful monopsony, does not offer clear directions. While some authors argue that bilateral monopoly produces welfare effects that are superior to those of monopoly or monopsony and that it does not raise any competition concerns¹⁰²⁴, others doubt on the possibility of bilateral bargaining to reliably reach an efficient outcome, because of the pervasive presence of private information and incomplete contracts¹⁰²⁵.

This debate on buyer power or monopsony is particularly important in the context of the emergence of large and powerful digital platforms that benefit from a bottleneck position at the middle of the digital value chain and may be seen as exploiting their power in order to extract unfair terms from their suppliers, or more generally the members of their ecosystem, including dependent self-employed labour force, and capture most of the surplus value generated by the value chain, thus leading to a fall in the labour share of capital¹⁰²⁶. Through the exercise of monopsony or buyer power, these digital platforms develop also their ability to impose a lower level of privacy protection to their users, in the sense that the activity of harvesting data of digital platforms may be conceptualised as a form of purchasing of personal (or non-personal data), the users benefiting from 'free' services in return. The role of competition law in taming the buying power or monopsony of digital platforms in these various markets, and in particular labour markets¹⁰²⁷, sometimes assisted by digital platforms' exclusionary strategies, such

1022 D Sheffman & P Spiller, 'Buyers' strategies, entry barriers, and competition', (1992) 30 *Economic Inquiry*, 418.

1023 The term was first coined by John Kenneth Galbraith to describe the power developed on one side of the market as a way to counter the market power on the other side of the market. John Kenneth Galbraith, *American Capitalism: The Concept of Countervailing Power* (1952). See also, T von Ungern-Sternberg, 'Countervailing power revisited', (1996) 14 *International Journal of Industrial Organization* 507; P W. Dobson & M Waterson, 'Countervailing Power and Consumer Prices', (1997) 107 *Economic Journal* 418; Z Chen, 'Dominant Retailers and Countervailing Power Hypothesis', (2003) 34 *Rand Journal of Economics* 612.

1024 T Campbell, 'Bilateral Monopoly in Mergers', (2007) 74 *Antitrust law Journal* 521; R D. Blair & C Depasquale, *Bilateral Monopoly and Antitrust Policy*, in Roger D. Blair & Daniel Sokol (ed.), *Oxford Handbook of International Antitrust Economics*, volume 1 (Oxford University Press, 2015) 364, 377.

1025 J B. Baker, J Farrell & Shapiro, 'Merger to Monopoly to Serve a Single Buyer', (2008) 75 *Antitrust Law Journal* 637.

1026 D. Autor, D. Dorn, L. F. Katz, C. Patterson & J. Van Reenen, *The Fall of the Labor Share and the Rise of Superstar Firms* 1–3 (IZA Inst. Labor Econ., Discussion Paper No. 10756, 2017), <https://www.iza.org/de/publications/dp/10756/the-fall-of-the-labor-share-and-the-rise-of-superstar-firms> [<https://perma.cc/5KXG-B42X>].

1027 J. Azar, I., and M. I Steinbaum, *Labor market concentration*, Technical Report, National Bureau of Economic Research 2017; M. Steinbaum, *Antitrust, the Gig Economy, and Labor Market Power* (March 6, 2019). *Law and Contemporary Problems*, 2019, available at SSRN: <https://ssrn.com/abstract=3347949> ; Arindrajit Dube, Jeff Jacobs, Suresh Naidu, Siddharth Suri, *Monopsony in Online Labor Markets* (October 18th, 2018), available at https://irs.princeton.edu/sites/irs/files/monopsony_crowdsourcing_resubmission_sept_25_2018.pdf ; I. Marinescu & H. J. Hovenkamp, *Anticompetitive*

as no-poaching or non-compete agreements¹⁰²⁸, or by the expansion of the heteromation process¹⁰²⁹, is a hotly debated issue in competition law and economics scholarship.

4.5.2.3. Can existing market power concepts take into account innovation effects?

Competition in the digital era is marked by the idea of futurity, one dimension of which is the emphasis put on the impact on innovation. Competition authorities are increasingly geared towards protecting competition in innovation, thus considering that dynamic efficiency constitutes the most important source of welfare. welfare, it is possible to highlight the (arbitrary) categorical thinking implicit in the trade-offs. The interests of future 'consumers' are assumed to coincide with the revealed preferences of the current 'consumers', for instance regarding the direction of innovation that is socially valuable, notwithstanding any evolution of the values presently prevailing in society, the technologies available, or of what are the requirements of the rules of the prevailing social contract. This monocentric focus on the preferences of actual consumers for innovation, broadly defined, may explain why competition authorities have developed concepts that implement the 'relevant market' tool, when assessing the future effects of mergers or other anti-competitive practices on consumers, by developing concepts such as 'innovation markets'.¹⁰³⁰

The concept has nevertheless been subject to a number of criticisms: first, R&D is only an input to the production of goods and services and competition law analysis should focus on outputs, the actual supply of future goods and services; second, economic

Mergers in Labor Markets (April 2019). Indiana Law Journal, Vol. 94, 2019 ; U of Penn, Inst for Law & Econ Research Paper No. 18-8. Available at SSRN: <https://ssrn.com/abstract=3124483> ; E. A. Posner, G. Weyl & S. Naidu, Antitrust Remedies for Labor Market Power, (2019) 132 Harvard Law Review 537

1028 In 2010, the US DOJ entered a settlement with major digital platforms, such as Apple, Google, and Adobe, concerning their no-poaching or non-competition agreements in which they agreed not to hire each other's employees: See Press Release, Office of Pub. Affairs, U.S. Dep't of Justice, Justice Department Requires Six High Tech Companies to Stop Entering into Anticompetitive Employee Solicitation Agreements (Sept. 24, 2010), available at <https://www.justice.gov/opa/pr/justice-department-requires-six-high-tech-companies-stop-entering-anticompetitive-employee> . The US DOJ and the FTC also published specific guidance on this issue: US DOJ & FTC, Antitrust Guidance for Human Resource Professionals (October 2016), available at <https://www.justice.gov/atr/file/903511/download> . A number of recent antitrust cases made similar findings: see, Garrison v. Oracle Corp., 159 F. Supp. 3d 1044, 1053–55 (N.D. Cal. 2016); United States v. eBay, Inc., 968 F. Supp. 2d 1030, 1033 (N.D. Cal. 2013); In re High-Tech Emp. Antitrust Litig., 985 F. Supp. 2d 1167, 1172–73 (N.D. Cal. 2013); see also In re Animation Workers Antitrust Litig., 123 F. Supp. 3d 1175, 1181–84 (N.D. Cal. 2015).

1029 The process of heteromation was coined by Hamid Ekbai and Bonnie Nardi as referring to a process in which activities that were previously taking place within the firm are outsourced to the firms' users/customers who enter into activities that contribute to the value with little or no compensation. Users are seduced into (gaming, social media...) or forced to (self-service, gatekeeper apps like Academia.edu...) participation in heteromated labour that provides surplus value without adequate compensation: H.B. Ekbai & B.A. Nardi, Heteromation (MIT press, 2017). Some authors hinted to the idea that the process of personal data harvesting may be considered as involving a form of labour from the part of the users of the platforms: I. Arietta Ibarra, L. Goff, D.H. Hernández, J. Lanier, E.G. Weyl, Should We Treat Data as Labor?, (May 2018) Papers and Proceedings of the American Economic Association 1, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3093683 .

1030 See RJ Gilbert and SC Sunshine, 'Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets' (1995) 63 Antitrust Law Journal 569.

theory does not provide a solid empirical basis on the assumption that the decrease in the number of firms engaged in R&D will affect negatively innovation (the link between market structure and innovation), as the elimination of redundant expenditure, the reduction of costs and the possibility for the firm to fully capture the results of the R&D programme might accelerate the process of innovation; third, the sources of R&D may be difficult to identify as discoveries may come from unexpected places. An “innovation market” approach may not provide an appropriate framework to the extent that it does not take into account the possibility of drastic innovation and the possible entry of undertakings that are not presently active in the specific industry or market, but may have some technological capabilities that could enable it to constitute a possible competitive constraint in innovation competition¹⁰³¹.

In some recent merger cases concerning the seed/agrochem sector, the European Commission took a broader perspective and employed the concept of “innovation space” and “industry” when assessing the possible effect of the merger transaction on innovation¹⁰³². According to the Commission, when analysing the effects on innovation it becomes important to assess the impact of the transaction “at the level of innovation efforts by the Parties and its competitors”¹⁰³³. The assessment of innovation competition follows three steps:

“(349) First, the assessment of innovation competition requires the identification of those companies which, at an industry level, do have the assets and capabilities to discover and develop new products which, as a result of the R&D effort, can be brought to the market.

(350) Secondly, it is also relevant to identify and analyse those spaces in which innovation competition occurs in the crop protection industry. The R&D players do not innovate for all the product markets composing the entire crop protection industry at the same time. They also do not innovate randomly without targeting specific spaces within that industry. When setting up their innovation capabilities and conducting their research R&D players have specific discovery targets ([...]).

(351) A given discovery target is based on lead crops and lead pests and may thus comprise AIs that can be used in several downstream formulated product markets (for example chewing Lepidopteran insecticides, broadleaf herbicides). The spaces where innovation competition takes place are thus broader than an individual downstream crop protection market, but are nonetheless small. In fact, in light of increasing regulatory hurdles, which require crop protection products to be ever more selective, the innovation spaces in the crop protection industry are getting ever smaller: the innovation output tends to be confined to ever narrower spaces from which it is more difficult to adapt the innovation to other purposes.

1031 R. J Gilbert, ‘Competition and Innovation’ in Wayne D Collins (ed) 1 ABA Section of Antitrust Law, Issues in Competition Law and Policy 577, 583 (American Bar Association 2008) Ch 26.

1032 EU Commission Decision, CASE M.7932 Dow/Dupont (2017), paras 348-352.

1033 Ibid., para. 348.

(352) In conclusion, in order to assess innovation competition, the Commission will both consider metrics of innovation taking place at industry level, as well as innovation taking place in spaces consisting of groupings of crop/pest combinations [...] [areas where the parties' activities overlapped]¹⁰³⁴.

In its assessment of the *Dow/Dupont* merger the Commission focused both on innovation competition "at the level of innovation spaces within the crop protection industry and on innovation competition at the industry level"¹⁰³⁵. More specifically, the Commission focused on the line of research the merging companies were active, the latter concept comprising "the set of scientists, patents, assets, equipment and chemical class(es) which are dedicated to a given discovery target whose final output are successive pipeline [products] targeting a given innovation space"¹⁰³⁶.

A closely related debate is that on the way to integrate potential competition in the rapidly evolving digital industry. The debate was generated by the allegations that many established companies proceed to 'killer acquisitions' buying out smaller start-ups or small and medium undertakings with the aim to discontinue the development of the targets' innovation projects that may challenge their dominant position, thus pre-empting future competition¹⁰³⁷. Indeed, if an additional investment in R&D by a potential entrant reduces the expected profits of a rival (and vice versa), because of its business stealing effect, then a merger between these two firms may internalise this negative externality, and reduce innovation.

Actual competitors are considered in the operation of the definition of a relevant market that may be affected by the specific anticompetitive conduct under examination. For instance, a merger where the target firm is not competing in the same relevant market of the acquiring firm can still give rise to a significant impediment of effective competition (SIEC), whether non-coordinated or coordinated, if there is a realistic prospect that the former could decide to enter the market in the near future but for the merger in question. The threat of entry is stronger where the target company already has, or is very likely to acquire, assets that could facilitate entry. Evidence of actual plans to enter at an advanced stage would point towards that conclusion. However, the likelihood of a SIEC is reduced if there are a sufficient number of potential competitors left able to discipline actual competitors. Usually competition authorities have taken a relatively narrow time scale for considering potential competition. For instance, under the EU Merger Guidelines, to be an effective threat, potential competitors should be able to enter within two years and on a sufficient scale. This can lead to ignore the possibility of potential entry into a market if the time scale of this entry may be longer than two years. The difficulty resides in finding evidence that the potential competitors may have such plans and that these are credible enough to influence the competitive strategies of the merging firms.

1034 Ibid., paras 349-352.

1035 Ibid., para. 1956.

1036 Ibid., para. 1958.

1037 Some analysis in the pharmaceutical sector argues that more than 6% of acquisitions every year are 'killer acquisitions': see C. Cunningham, F. Ederer, and S. Ma, *Killer Acquisitions* (2018), available at: http://faculty.som.yale.edu/songma/files/cem_killeracquisitions.pdf.

It is thought that extending the time scale to a longer period than two years may lead to a high degree of uncertainty and increase the risk of arbitrary decision-making.

However, there can be circumstances where the threat of potential competition is less palpable but where a merger may be thought to give rise to a SIEC. It is often argued that the valuation of internet start-ups is very subjective due to the elusive nature of the key intangible asset underpinning their business model, that is, the acquisition of a large customer base. To this end, firms typically attract users by offering their services for free, thus incurring material operational losses for a number of years before the prospect of turning the venture into a profitable business. Furthermore, it is argued that once the customer base is in place, it is easier to launch new services thanks to the availability of a critical mass. Similar conclusions may be reached with regard to the possibility of a market becoming contestable in a medium term (e.g. five years), this assessment being based on the “idiosyncratic rent-earning resources” and capabilities, such as specific innovation and technological capabilities, that few other undertakings may have, that could provide them an advantage in entering a specific market, in particular if the structure of the industry is that of a global oligopoly. In this case, it is possible to argue that such resources and capabilities should be taken into account, even if there are no established plans or plans in the making to enter the specific market. But of course, such an approach will be subject to the criticism of considerably expanding the discretion of competition authorities to intervene, or not.

In this context, some competition regulators, in particular the European Commission, have looked beyond the R&D pipeline to explore the dynamic resources and capabilities of the specific firms to innovate and the development of specific “lines of research.”¹⁰³⁸ The Commission has looked, for instance, to investment in basic R&D that may with some degree of probability become eventually profitable, even if this probability remains limited, for instance 10%. This approach seems to expand both the locus and the time period that is usually considered in assessing actual or potential competition, as the Commission has examined the overlaps between the parties, not only at the level of innovation spaces, by looking to “early pipeline projects” and “lines of research,” but also at the level of the industry. The Commission has indeed taken into account the global characteristics of R&D organisations, that is, the resources, personnel, facilities, and other tangible and intangible assets dedicated to research and development.¹⁰³⁹ If such a broader analysis may be perfectly justifiable in order to assess the innovation effects of the merger transaction and reduce the likelihood of “killer acquisitions,” it would also make sense to adopt a similarly flexible perspective when assessing potential entry when this could constrain the pricing strategies of the merged entity. Unless one is to consider that price effects would merit a different approach than innovation effects. This could make a difference in some cases, in particular if it is reasonable to expect that the future competitor may have the incentives and ability to enter the market in the medium term, on the basis of its tangible and intangible assets, idiosyncratic resources and

1038 A theory that has, for instance, influenced the approach of the European Commission in Dow/DuPont: European Commission, Case M.7932 Dow/DuPont (2017).

1039 Ibid., para. 1957.

capabilities, possibly in view of some history of previous expansion in other geographic markets.

4.5.3. Vertical non-structural power: variations on a theme

The theory of non-structural market power has been criticized by some authors as not being sufficiently substantial to constitute market power under competition law, and that it should therefore be excluded from competition law assessment¹⁰⁴⁰. Two reasons are advanced for this criticism: (i) enforcement agency budgets and judicial resources are scarce and thus, it does not make sense to squander them in attacks on market power over low sales volumes, as it is the case for relational power and (ii) there are no procedures or specific methodologies/metrics for measuring the extent of market imperfections, thus permitting the intervention of the competition authority in situations of intermediation or significant architectural or positional power. These issues notwithstanding vertical power becomes particularly important in the rapidly evolving environment of the digital economy, in which futurity and the potential for disruption plays a considerable role in driving the market valuation of the various players and therefore potential competition takes centre-stage, sometimes being more important than actual competition. This is particularly the case if the focus shifts from efficiency to the capture of surplus value in digital value chains, which brings in a fairness perspective. It becomes therefore essential to explore in more detail the different forms of non-structural power that have been put forward in the various competition authorities' reports and the literature.

4.5.3.1. Bottleneck or chokepoints power

Traditional conceptions define monopoly power by reference to the capacity it confers to exclude rivals: US economist Edward Mason explained the different conceptions of monopoly power in law and in economics, by opposing the neoclassical price theory view of market power as the ability to raise prices profitably and reduce output, to the legal conception of monopoly power as the ability to exclude competitors and to affect the competitive process¹⁰⁴¹.

New industrial economics have focused on the possibility of incumbents to employ strategic barriers to entry in order to exclude or marginalise rivals and thus be able to raise prices and harm consumers.¹⁰⁴² Professors Krattenmaker, Lande and Salop have argued that there are two methods of exercising market power corresponding, respectively, to the 'power to control price' and 'power to exclude competitors' distinction¹⁰⁴³:

1040 B Klein, 'Market Power in Antitrust: Economic Analysis After Kodak' (1994) 3 Supreme Court Economic Review 43.

1041 See, Monopoly in Law and Economics' [1937] 47 Yale Law Journal 34

1042 See, A Jacquemin, *Sélection et Pouvoir dans la nouvelle économie industrielle* (Economica, 1985), 118.

1043 TG Krattenmaker, RH Lande and SC Salop, 'Monopoly Power and Market Power in Antitrust Law' (1987) 76 Geo L J 241, 248.

“First, the firm or group of firms may raise or maintain price above the competitive level directly by restraining its own output (‘control price’). The power to control price by restraining one’s own output is the usual focus of Chicago School antitrust analysts. For this reason, we denote the power to control price profitably, directly by restraining one’s own output, as classical [...] market power.

Second, the firm or group of firms may raise price above the competitive level or prevent it from falling to a lower competitive level by raising its rivals’ costs and thereby causing them to restrain their output (‘exclude competition’). Such allegations are at the bottom of most antitrust cases in which one firm or group of firms is claimed to have harmed competition by foreclosing or excluding its competitors. We denote this power as exclusionary [...] market power. Consumer welfare is reduced by the exercise of either [classical] or [exclusionary] market power. [...]

Exercising either type of power reduces allocative efficiency and transfers wealth from consumers to the owners of the firms exercising monopoly power. In addition, for [exclusionary] market power, production efficiency also is reduced”.¹⁰⁴⁴

The distinction is important as “anticompetitive, exclusionary, market power occurs when an excluding firm successfully achieves two related goals”: first “by denying inputs to its rivals, the excluding firm materially raises its rivals’ costs”; second, “by thus precluding the competitive check on its price and output decisions that those rivals provide, the excluding firm thereby gains the power to price in its output market above the competitive level. [...]”.¹⁰⁴⁵ Proof of either power should, according to the same authors, lead to the finding of market power or a dominant position.

An important implication of exclusionary market power concept is that it leads to a different approach from neo-classical market power or ‘power over price’ in order to estimate the existence of a dominant position, the competition authority first identifying the allegedly exclusionary conduct, and then analyzing market power.

Controlling a bottleneck or a ‘chokepoint’ in a network, cutting adversaries off from network flows¹⁰⁴⁶ may qualify as a dimension of exclusionary power, which we will call ‘bottleneck power’. Bottleneck power has been a particular concern in view of the ability of platforms to adopt strategies such as exclusive contracts, bundling, or technical incompatibilities in order to restrict entry of competitors, in particular in the digital economy. Bottleneck power does not only result from supply-side conditions, such as the control of an essential facility or input, necessary for competing producers if they are not to be excluded or marginalised from the market. It may also ensue from demand-side conditions, such as the propensity of consumers to single-home, and thus, not to use more than one platform for the specific functionality¹⁰⁴⁷. One may also envisage differ-

1044 Ibid.248-253.

1045 Ibid.

1046 H. Farrell & A. L. Newman, *Weaponized Interdependence: How Global Economic Networks Shape State Coercion*, (2019) 44(1) *International Security* 42, 46.

1047 See, for instance, the definition of ‘bottleneck power’ by George J. Stigler Center for the Study of the Economy and the State – The University of Chicago Booth School of Business, Committee for the Study of Digital Platforms Market Struc-

ent forms of bottlenecks that may emerge from changes in technology or the creation of new commodities, and scarcities, as bottlenecks in the digital economy may evolve in view of the technological developments.

4.5.3.2. 'Intermediation' power

The pivotal role of digital platforms and information intermediaries in the new economy has attracted the attention of competition authorities and has renewed the discussion over the sources of economic power, beyond the narrow view of market power as the ability to raise prices and reduce output profitably. The German Ministry for the Economy and Energy commissioned to a group of academics a report on the Modernisation of competition law published in September 2018¹⁰⁴⁸. This report followed the 9th amendment of the '*Gesetz gegen Wettbewerbsbeschränkungen*' (GWB, Law against Restraints of Competition) in which the legislator had implemented a more precise definition of the assessment criteria for the finding of a dominant position of platforms and networks. The study's aim was to clarify whether the rules on abuse of dominant positions are sufficiently clear and effective and whether the particular challenges of the new economy could be sufficiently dealt with by §§ 18 and 19 GWB (the German equivalent to 102 TFEU), or should also be met through the use of §20 GWB, a provision prohibiting certain conducts of undertakings with relative or superior (non-structural) market power. Indeed, § 20 GWB is a stricter national provision for the protection against unilateral abuses, as is allowed pursuant to Art 3 (2) Reg. 1/2003. According to § 20 (1) GWB abuses of relational market power (in vertical relations) are prohibited while 20 (3) GWB proscribes exclusionary practices by an undertaking with comparatively more market power than its competitors. The German courts (BGH) have imposed very restrictive requirements on the applicability of § 20 (3) GWB.

The study's starting point was the important role of new 'information intermediaries' (search engines, price comparison platforms, booking portals and trading platforms) which collect, sort and rank (at least parts of) the available online information for consumers and occupy a central position in an increasing number of markets. According to the *Modernisierung* Study, 'information intermediaries' provide the consumers with all kinds of information about the quality and reliability of different offers and transaction partners and create – following the evaluation of user data attractive matching options. Indeed, the efficient 'matching' of information-supply according to respective consumer preferences has become the core of many digital platforms. Moreover, consumers' options to check the quality of the 'intermediation intermediary' itself are limited. Therefore, the Report found that the increasing use of 'information intermediaries'

ture and Antitrust Subcommittee (Report, May 15th, 2019), available at <https://research.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf?la=en&hash=E08C7C9AA7367F2D612DE24F814074BA43CAED8C> as 'a situation where consumers primarily single-home and rely upon a single service provider (a "bottleneck"), which makes obtaining access to those consumers for the relevant activity by other service providers prohibitively costly'.

1048 Bundesministerium für Wirtschaft und Energie, Modernisierung der Missbrauchsaufsicht für marktmächtige Unternehmen (September 4th, 2018), available at <https://www.bmwi.de/Redaktion/DE/Publikationen/Wirtschaft/modernisierung-der-missbrauchsaufsicht-fuer-marktmaechtige-unternehmen.html> (hereinafter Modernisierung Study).

caused sellers of goods and services to become dependent on access and visibility of their offers on these intermediaries, that thus function as gate keepers in a variety of different contexts. The economic power that an intermediary disposes in relation to a seller or service provider depends on the extent of consumers utilizing (solely) that intermediary and on the quality and availability of alternative intermediaries. If a supplier of goods and services is dependant from a digital intermediary, then this intermediary does not face any (significant) competitive constraints. This can be the case even if the intermediary has lower market shares than those traditionally required for the finding of dominance. Even if there are potential substitute platforms that consumers may switch to, information intermediaries may act independently of any competitive constraints, if consumers' reaction (e.g. leaving the platform) to price increases is stronger than decreases in quality (e.g. rankings that are not based on user preferences) and/or if consumers do not systematically multi-home and compare the results. This can lead to market failures that could be conducive to competition law enforcement, in particular as digital platforms and intermediaries may employ a variety of strategies to reduce inter-platform competition and artificially induce the tipping of the market. These can be exclusionary strategies towards horizontal competitors (at various segments of the value chain), for instance, through impeding multi-homing, certain smart pricing structures, conduct increasing the switching costs for consumers, self-preferencing in the context of a vertically integrated platform), or the development of conglomerate strategies that would enable digital platforms to gather a lot of data over consumers, and combine them so as to create very detailed user profiles, thus reducing the contestability of the intermediation power of digital platforms.

It is interesting that the study includes information asymmetries among the market failures that should be taken into account in competition law enforcement in the digital economy. According to the *Modernisierung* Study there are situations, in which an information intermediary may abuse information asymmetries vis-a-vis consumers for its own advantage and thereby exclude competitors with better services from the market, even if the incumbent does not dispose of a market share of at least 30-40%. This type of power can hardly be captured under traditional the assessments of market power (selling or buyer power). According to the Report, the broad definition of a dominant position in EU and German competition law as the 'possibility to act independent of any competitive constraints' may appear in conflict with the structural minimal requirements (minimum market shares) approach and raises the question as to whether a dominant position can be inferred from the ability to exclude competitors through a systematic abuse of information asymmetries.

In order to deal with this gap, the *Modernisierung* Study puts forward the concept of 'intermediation power'. Usually intermediation power can be seen as a special form of seller power, namely intermediation power on the market for the supply of intermediation services to suppliers of goods and services. However, this approach does not integrate the dependency of suppliers of goods and services on the intermediation service. For the authors of the Study, the concept of intermediation power should stand explicitly as

a third form of power, in addition to buyer power and seller power, in § 18 GWB and Art 102 TFEU. It would apply when there is a direct market relation between the intermediation platform and the supplier. Hence, they suggest that the criteria for the assessment of the market position of networks and multi-sided platforms enumerated in § 18 Abs. 3a GWB should be supplemented with a criterion relating to the ‘importance of the platform in the intermediation between suppliers and consumers’. Furthermore, § 20 GWB should be developed in order to encompass (relational) intermediation power.

However, moving beyond its conception as a form of relational power, the Study also argues that ‘intermediation power’ may also exist even if there is no market relation between the intermediation platform and the supplier (for instance in the case of pure information intermediaries, like specialised search engines which just provide users with aggregated publicly available information). The Study notes that ‘a significant ability to steer “information consumers” to certain offers, and thereby to affect – and possibly restrain – competition’ constitutes a possible source of ‘intermediation power’. The Study notes a gap in the enforcement of competition law as 102 TFEU/§§ 18, 19 GWB only encompass the dependency of undertakings on a ‘information intermediary’ indirectly, and only if there is a dominant position in relation to the user side (consumers) that is extended through abusive conduct to neighbouring markets. Thus, if the concept of intermediation power is to encompass also these situations, § 18 Abs. 1 GWB and in § 20 Abs. 1 GWB should clarify that intermediation power does not necessitate a market relation between intermediary and undertakings.

The *Modernisierung* Study also notes that unfair competition laws may constitute a tool for dealing with deceptive practices independent of any finding of market power (under § 3 and 5 UWG in Germany). It is also observed that the EU-Commission made suggestions regarding transparency duties for digital platforms towards commercial users, irrespective of any finding of market power (with the adoption of the Platform to Business Regulation), and they note also proposals for the amendment of the Directive on Consumer Rights to improve transparency duties towards consumers. For instance, online-Marketplaces should be obliged to reveal the essential ranking parameters, the applicability of consumer protection laws and the identity of the contractual partner (whether the consumer concludes a contract with the platform operator or with a third party). The Study noted that information asymmetries should be dealt with the parallel development of unfair competition laws, consumer protection laws and contract laws, but that insofar as digital platforms dispose of significant market power, transparency duties and contractual duties alone will not suffice for the protection of competition. Hence, the Study emphasises the fact that infringements of unfair competition laws, consumer protection laws and contract laws may constitute an infringement of competition law provisions, should the other criteria for these provisions being satisfied (*‘Missbrauch durch Rechtsverstoß’* or alternatively *‘Konditionenmissbrauch’*, when contractual terms imposed fall short of mandatory legal requirements). The Study also noted the utility of the new § 32e Abs. 5 GWB which foresees that the Bundeskartellamt may conduct sector inquiries if there is a reasonable suspicion that significant, long lasting

and repetitive infringements of consumer protection laws has taken place harming the interests of many consumers and the opening of such a sector inquiry on October, 24th 2017 with regard to online price comparison platforms.

4.5.2.3. Superior bargaining power

Concerns over the rising power of digital platforms have led some competition authorities to envisage the adoption of new rules on superior bargaining power, these rules either forming part of competition law statutes or of other functional equivalents.¹⁰⁴⁹ These different rules stay relatively opaque as to the definition of the concept of superior bargaining power. The common characteristic (and presumably) advantage of these provisions being that they may potentially impose competition law related duties to undertakings not disposing of a dominant position or a significant market power, for unilateral conduct, which would have otherwise not been subject to competition law related duties under the traditional rules of abuse of a dominant position¹⁰⁵⁰.

The concept of superior (or unequal) bargaining power is also a well-known concept in the fields of contract law and unfair competition law, where it has given rise to a considerable literature attempting to unveil its theoretical underpinnings.¹⁰⁵¹ Authors usually contrast the use of this concept in these areas of law, where the focus is on the unfairness of the process of exchange, with the efforts to integrate this rule in the field of competition law, where the emphasis is usually put on outcomes, such as efficiency or consumer welfare¹⁰⁵². The underlying objective of contract law or unfair competition statutes consists in regulating the contest between contracting parties and ensuring a relatively equalized landscape of bargaining capacity, bargaining power being interpreted as the interplay of the parties' actual power relationship in an exchange transaction.¹⁰⁵³ On the contrary, competition law defines bargaining power more generally, in terms of the ability of an undertaking to introduce a deviation from the price or quantity obtained from the competitive situation in the market in which the transaction takes place. In this context, buying power denotes the ability of a buyer to achieve more favourable terms than those available to other buyers or what would otherwise be expected under normal competitive conditions. This approach emphasizes the gain

1049 For a comparative analysis of rules on superior bargaining power, see ICN, Report on Abuse of Superior Bargaining Position (2008), available at <http://www.internationalcompetitionnetwork.org/uploads/library/doc386.pdf>. See, the recent letter of the UK CMA chair

1050 See the suggestions in the Furman report

1051 See in particular S. N. Thal, *Inequality of Bargaining Power Doctrine: The Problem of Defining Contractual Unfairness*, (1988) 8 Oxford J. Legal Stud. 17; M. J. Trebilcock, *The Doctrine of Inequality of Bargaining Power: Post-Benthamite Economics in the House of Lords* [1976] University of Toronto L. J. 359; L. A. DiMatteo, *Equity's Modification of Contract: An Analysis of the Twentieth Century's Equitable Reformation of Contract Law* (1998) 33 New Eng. L. Rev. 265; and more recently A. Choi and G. Triantis, *The Effect of Bargaining Power on Contract Design* [2012] Va. L. Rev. 1665.

1052 See, P. Akman, *The Concept of Abuse in EU Competition Law: Law and Economic Approaches* (Hart Pub., 2012), 170-184.

1053 Yet, it is important to note that regulatory interventions in order to rebalance contractual inequality are still designed as exceptions to the principle of the freedom of contract and the certainty of the contract, especially in B2B contracts, where a very limited power to rebalance the contractual arrangement is generally left to the discretion of the judge.

resulting from the presence of bargaining power relative to a situation in which it is absent (not necessarily that of perfect competition),¹⁰⁵⁴ focusing on market structure and concentration.¹⁰⁵⁵

The debate usually takes a more philosophical dimension, the main argument put forward by the opponents to the integration of the concept of ‘superior bargaining power’ in competition law assessment, being that competition law aims exclusively at the maximization of welfare effects, and should not include considerations of fairness, allegedly served by the doctrines of economic duress, unconscionability and undue influence in English contract law.

Box 4.7. South Africa and abuse of buyer power

The Competition authorities in South Africa have not yet developed a policy on the digital economy. Although South Africa’s recent Competition Amendment Act 18 of 2018 has not specifically been designed to address digital markets, some features could have particular relevance for the authorities’ assessment of digital markets. On-line trading platforms have been included in a preliminary list of sectors to which a newly introduced prohibition against abuse of buyer power applies. The Amendment Act also strengthens market inquiry provisions. The South African Government applies a National Integrated ICT Policy. It outlines the overarching policy framework for inclusive digital transformation and includes strategies such as a national broadband policy.

Source: BRICS NCAs Questionnaire

With regard to the definition of the relevant concept of economic power, some scholars have tried to draw a clear boundary between bargaining power, which is considered a contract law issue, and monopoly power, which is viewed as a competition law issue, what we will call the separability thesis. In particular, Trebilcock believes that it is fundamental to differentiate ‘situational monopolies’ from ‘structural monopolies’¹⁰⁵⁶. Situational monopolies are transitory states of imbalance in the bargaining position of the parties to an agreement, which can be subject to exploitation. The ‘situational monopolist’ (in Trebilcock’s terms) may take advantage of the business partner by charging prices that are higher than its ‘reference price’. For instance, Trebilcock imagines a situation where ‘A has violated his own reference price in opportunistically taking advantage of B’s temporary dependency’¹⁰⁵⁷. For Trebilcock, these monopolies should be regulated

1054 See, R. Clarke, S. Davies, P. W. Dobson and M. Waterson, *Buyer Power and Competition in European Food Retailing* (Edward Elgar 2002).

1055 J. T. Dunlop and B. Higgins, *Bargaining Power and Market Structures*, (1942) L(1) *The Journal of Political Economy* 1, 4-5; R. G. Noll, “Buyer Power” and Economic Policy, (2005) 72 *Antitrust Law J.* 589.

1056 M J Trebilcock, *The Limits of Freedom of Contract* (Harvard University Press 1997); Michael J Trebilcock, ‘The Doctrine of Inequality of Bargaining Power: Post-Benthamite Economics in the House of Lords’ [1976] *University of Toronto Law Journal* 359.\\uc0\\u8216{}The Doctrine of Inequality of Bargaining Power: Post-Benthamite Economics in the House of Lords\\uc0\\u8217{} [1976] *University of Toronto Law Journal* 359.}”, “plainCitation”: “Michael J Trebilcock, *The Limits of Freedom of Contract* (Harvard University Press 1997

1057 M Trebilcock, *The Limits of Freedom of Contract*, 94. “plainCitation”: “Trebilcock, *The Limits of Freedom of Contract* (n 201

by contract law. On the other hand, structural monopolies are those that antitrust law should target, as the dominance of the monopolist is market-wide and non-transitory. Here, the dominant firm enjoys a market power that precedes the negotiation of the specific bargain and that impacts on all the market actors¹⁰⁵⁸. However, it has already been noted that when the relevant market is narrowly defined, as it may happen in EU competition law, the two situations are indistinguishable and therefore the distinction may lose significance¹⁰⁵⁹. Trebilcock maintains that while the problem of competition law is to determine and remedy to market failures, contract deals with contracting failures, which in the particular case of duress, relates to the coercion of voluntariness that may happen in 'situational monopolies'. This is particularly the case for long term contracts where exploitation of a 'bilateral monopoly' is likely to occur¹⁰⁶⁰.

Several competition law regimes may be ambiguous as they may incorporate provisions regarding unilateral conduct involving 'unfair business practices' or 'unfair contract terms'. Inequality of bargaining power has also been used by the European Commission in several cases, especially to deal with situations of economic dependence. According to Akman, '(t)he lack of freedom to choose between different suppliers as a result of the dominant undertaking's conduct' has been a concern in Article 102 TFEU cases in the EU¹⁰⁶¹. Akman identifies two main problems that may arise of the interplay between competition law and the contract law doctrine of economic duress:

1058 Id. 96. "publisher": "Harvard University Press", "number-of-pages": "324", "source": "Google Books", "abstract": "Our Legal System is committed to the idea that private markets and the law of contracts that supports them are the primary institutions for allocating goods and services in a modern economy. Yet the market paradigm, Michael Trebilcock argues, leaves substantial room for challenge. For example, should people be permitted to buy and sell blood, bodily organs, surrogate babies, pornography, or sexual favors? Is it fair to allow people with limited knowledge about a transaction and its consequences to enter into it without guidance from experts? Finally, do people always know their own preferences, many of which may be socially conditioned? These are only a few of the issues Trebilcock explores in this sweeping analysis of the private ordering model of contract law and the major theoretical camps critiquing it, including the communication and the feminist. He examines the implication that the private ordering paradigm simultaneously promotes autonomy and welfare values, and argues that in many contexts the convergence of these values is much more contestable than its proponents claim. The book treats all the conflicting perspectives with care, acknowledging both their strengths and their weaknesses, and using them to illuminate many specific dilemmas. Trebilcock also pays close attention to how various theories may be translated into practice, revealing that ideas which appear to oppose each other at an abstract level are in fact similar when implemented at the institutional level. In conclusion, Trebilcock argues that we need to be more alert to the possibility of adopting public policies that broaden access to market opportunities for the disadvantaged. Economists, lawyers, political scientists, philosophers, and policy analysts will all benefit from reading this brilliant synthesis and reinterpretation of contract law.", "ISBN": "978-0-674-53430-8", "language": "en", "author": [{"family": "Trebilcock", "given": "Michael J."}], "issued": {"date-parts": [{"1997}]}, "locator": "96", "schema": "https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

1059 P. Akman, 'The Relationship between Economic Duress and Abuse of a Dominant Position' [2014] *Lloyd's Maritime and Commercial Law Quarterly* 99, 113.

1060 Id. 111. In this connection, Akman recalls Hovenkamp arguing that "[s]imple bilateral monopoly is not an antitrust problem because bilateral monopoly has no consequences for market prices and output" in Herbert Hovenkamp, 'Harvard, Chicago, and Transaction Cost Economics in Antitrust Analysis' (2010) 57 *The Antitrust Bulletin* 613, 14.

1061 P. Akman, 'The relationship between economic duress and abuse of a dominant position', (2014) *Lloyd's Maritime and Commercial Law Quarterly* 99, 102, who also noted that "the level of competition on a market and the objectionability of the contracts entered into on that market may be related" (Id., 101-102).

‘First, there is a danger that pure contract cases are litigated as competition cases, even where there is no harm to competition. [...] Secondly, competition cases can be litigated as contract cases. [...]’¹⁰⁶².

Adopting a separability thesis, which aims to establish clear boundaries for the application of competition law and contract law, Akman argues that ‘pure exploitative practices where there are no issues of exclusion are more appropriately dealt with by contract law rather than by competition law’¹⁰⁶³.

In conclusion, two views are usually advanced with regard to the interaction of provisions focusing on superior bargaining power and competition law. First, considerable effort has been spent in order to mould the concept of superior bargaining power into the competition law and economics traditional framework by bringing adjustments to traditional competition law concepts such as relevant market and market power¹⁰⁶⁴ or focusing competition law enforcement on ‘buying power’. Second, new provisions on superior bargaining power or economic dependence, introduced in the competition law statutes by some jurisdictions, are typically examined from the perspective of efficiency and consumer welfare and usually relegated to the outer boundaries of competition law provisions on abuse of a dominant position, for instance on the basis of an error cost analysis,¹⁰⁶⁵ or the perception that fairness concerns have little role to play in modern competition law¹⁰⁶⁶. Provisions on superior bargaining power are examined from a public choice perspective as a by-product of the political pressure of organised interests of small and medium undertakings or farmers, leading to the adoption of mainly redistributive statutes that restrict competition and presumably economic efficiency.

We consider that the ‘superior bargaining power’ concept is too easily dismissed by competition law scholarship. First, from a normative perspective, the role this concept may play in competition law enforcement becomes particularly significant, should one abandon a narrow neoclassical price theory (NPT) efficiency or consumer welfare driven perspective for an approach that would seek to preserve the competitive process or

1062 P. Akman, *The relationship between economic duress and abuse of a dominant position*, (2014) *Lloyd's Maritime and Commercial Law Quarterly* 99, 102-103.

1063 *Id.*, 108-109.

1064 See, for instance, § 20 of the German Act against Restraints of Competition on “relative and superior market power” (relative und absolute Marktmach).

1065 See, for instance, F. Wagner von Papp, *Unilateral conduct by non-dominant firms: a comparative reappraisal*, ASCOLA Tokyo Conference (2015), (on file with the author, shortly available at the SSRN) conducting an “error cost analysis” and advancing the view that dominance, and consequently the definition of a relevant market, is a necessary condition for a superior bargaining power to be considered as a competition law problem and recognising the countervailing impact that subsidiary contract law enforcement would have on error costs. An error cost analysis conducted in abstracto may underestimate the transaction costs associated with the use of the specific legal process, which may vary from jurisdiction to jurisdiction and in some cases may be less important in the context of competition law enforcement than other alternatives. Error cost analysis may also lead to the “sin of single institutional analysis” see, K. N. Komesar *Law's Limits*, (Cambridge: Cambridge University Press, 2001) as it will emphasize the defects of one institutional alternative (e.g. competition law) on some aspects to argue for an expansive role of another, probably equally defective in some other aspects, institutional choice: contract law or unfair competition law statutes.

1066 See, for instance, P. Akman, *The Concept of Abuse in EU Competition Law* (Hart Pub. 2012), Ch. 4.

even one that will be inspired by broader political economy considerations. Second, from a descriptive perspective, we note that legislators and competition authorities do not share the antitrust law pessimism usually displayed by authors inspired by the NPT paradigm towards the concept of superior bargaining power, and have increasingly engaged with it, in the context of traditional competition law enforcement with regard to retail consolidation through buying alliances or mergers, in particular in the context of vertical restraints. That said, we do not consider that the concept should dispense from an analysis, probably at a latter stage in the competition law assessment, of the existence of harm to competition as a result from the specific conduct, the simple exploitation of a situation of superior bargaining power not being equated to harm to competition¹⁰⁶⁷. The main added value of our approach is that it will not exclude outright from consideration exclusionary or exploitative conduct resulting from a situation of superior bargaining power, because of the simple fact that the undertaking in question does not dispose of substantial market power, defined as power over price (neoclassical market power), the latter concept functioning as a filter dispensing any further analysis. Such an approach will also break the artificial dichotomy between the step of determining the existence of a dominant position and that of identifying the abuse, thus enabling a more purposive definition of each element, enabling the claimant to put forward an overall theory of harm to competition resulting from the alleged abuse of a dominant position, which may eventually be rebutted by the defendant.

Recourse to the concept of 'superior bargaining power' may also expand the sources of market power taken into account in competition law. The attention of the competition law enforcers usually lingers on size and market share or concentration of the negotiating parties in order to define their power relations. However, scholarly studies on contracts and negotiations take a game/bargaining theory approach arguing that, for the outcome of negotiation, even more important than market shares or the size of negotiating parties is the existence of 'threat points' enabling one of the parties to seek a '*best alternative to a negotiated agreement*' (BATNA).¹⁰⁶⁸ Indeed, the negotiating party holding a BATNA has the possibility to resort to a valid alternative to the negotiation in progress or to the contract concluded, preventing hold-up and threats to cease negotiation. In conceiving the bargaining model one may take a Nash cooperative bargaining solution as the axiomatic starting point,¹⁰⁶⁹ or resort to a non-cooperative or sequential bargaining model which will attempt to factor in the costs of the delay to agreement, and extend this analysis from bilateral bargaining to n-person bargaining.¹⁰⁷⁰ Although

1067 With regard to this issue we agree with P. Akman, The relationship between economic duress and abuse of a dominant position, 130, who argues that 'demonstration of 'harm to competition' over and above harm to trading partners or competitors in all abuse cases may go some way in bringing clarity to the distinction between these two doctrines [economic duress and abuse of a dominant position]'.

1068 A. Renda and others, Study on the Legal Framework Covering Business-to-Business Unfair Trading Practices in the Retail Supply Chain, Final Report (2014) DG MARKT/2012/049/E 25, available at http://ec.europa.eu/internal_market/retail/docs/140711-study-utp-legal-framework_en.pdf; I. Ayres and B. J. Nalebuff, Common Knowledge as a Barrier to Negotiation (1996) 44 UCLA L. Rev. 1631.

1069 Most of these studies have relied on this type of model so far.

1070 See, for instance, J. Sutton, Non-Cooperative Bargaining Theory: An Introduction, (1986) LIII Review of Economic Studies

it is not clear if the results will be the same under each of these models, their common feature, in contrast to industrial organization theory, is that bargaining power is perceived as a concept that can be measured with reference to a specific bargaining relation in a specific context and it is not dependent on structural analysis (for instance the existence of monopsony or oligopsony). Bargaining power may also impact on price as well as on non-price terms.¹⁰⁷¹ Measuring bargaining power may be considered as a difficult exercise, although not necessarily more complex than that of measuring market power. It is encouraging that some competition law enforcers have tried to engage with the measurement task, adopting diverse approaches.¹⁰⁷²

The issue may take more centre-stage as in the modern digital and algorithmic economy, we observe very different processing and evaluation capabilities among firms, as a number of economic actors may be considered as holding “asymmetrical bargaining power” vis-à-vis their suppliers or buyers, through the collection of Big Data and the use of algorithms¹⁰⁷³. Some authors have even coined the term of ‘algorithmic power’¹⁰⁷⁴ in order to convey an additional, quite important, source of market power, in the sense that this is based on the ‘technological dependence’¹⁰⁷⁵ of economic actors that work and consume in an increasingly complex computational environment. It is also based on the capability of some actors to control the ‘agenda’ of decision-making¹⁰⁷⁶, for instance through the gate-keeping role of their digital platforms as the most important gateway of businesses to consumers¹⁰⁷⁷, or for the storage and processing of data¹⁰⁷⁸, the ‘oil’ of

709-724; K. Binmore, M. J. Osborne, A. Rubinstein, Non-Cooperative Models of Bargaining, Chapter 7 in *Handbook of Game Theory with Economic Applications* (Elsevier, 1992), 179-225.

1071 A. Choi and G. Triantis, *The Effect of Bargaining Power on Contract Design* (2012) Va. L. Rev. 1665.

1072 See, Bundeskartellamt, *Sektoruntersuchung Nachfragemacht Im Lebensmitteleinzelhandel* (2014) B2-15/11 BKartA, available at http://www.bundeskartellamt.de/Sektoruntersuchung_LEH.pdf?__blob=publicationFile&v=7 (hereinafter Bundeskartellamt Food Retail Report). The conditions adopted for this analysis were not only price terms but also non-price terms, such as deadline for payment and agreements on delivery. A fundamental stage of the Bundeskartellamt’s assessment was the reckoning of the importance of a retailer for its suppliers and the evaluation of the ‘outside options’ of both parties. For a discussion, see I Lianos & C Lombardi, ‘Superior Bargaining Power and the Global Food Value Chain: The Wuthering Heights of Holistic Competition Law?’, (2016 – I) *Concurrences* 22.

1073 See, F. Pasquale, *The Black Box Society: The Secret Algorithms that Control Money and Information* (Harvard Univ. press, 2015), Chap. 2; A. Ezrachi & M. Stucke, *Virtual Competition* (Harvard Univ. press, 2016), 125-128, 225 (discussing “asymmetric bargaining power”).

1074 See, T. Bucher, *Want to be on the top? Algorithmic power and the threat of invisibility on Facebook*, (2012) 14(7) *New Media and Society* 1164.

1075 See, the opinion of Advocate general Whatelet in Case C-170/13 *Huawei Technologies Co. Ltd v ZTE Corp. and ZTE Deutschland GmbH* [2015] ECLI:EU:C:2014:2391, paras 71 & 74 who coined the term. The AG found in this case that the incorporation of a patent-protected element into the industry standard and the fact that a licence to use that patent was therefore indispensable had created a relationship of dependence between the SEP-holder and the undertakings which produce products and services in accordance with that standard. According to the AG, “(t)hat technological dependence leads to economic dependence”.

1076 On the various definitions of “power” in economics and sociology, see M. Granovetter, *Society and Economy* (Harvard Univ. press, 2017), Chapter 4.

1077 One may, for instance, refer to the Amazon Marketplace.

1078 This could, for instance, be access to the cloud that is highly important for the Internet of Things. See, B Lundqvist, *Standardization for the Digital Economy – The Issue of Interoperability and Access Under Competition Law*, 62(4) *The*

the new economy¹⁰⁷⁹, or for the provision of artificial intelligence services. This is exemplified by, for instance, control over the choice architecture which frames individual choice in the context of an economic transaction. These economic actors will therefore be in a position to exploit their superior ‘algorithmic power’ and/or ‘manipulate’ the choice and eventually the preferences of their suppliers and buyers¹⁰⁸⁰. This may also be considered as forming a separate dimension of economic power for which specific metrics and methodologies need to be developed.

Developing appropriate metrics for measuring superior bargaining power constitutes one of the challenges to which competition law authorities that would like to integrate this concept in the competition law framework may face.

Attempts to measure bargaining power have so far focused particularly on the demand side bargaining power. Buyer power must not be conflated with monopsony and can take a variety of forms. Carstensen contends that “[t]he continuum of buyer power is a function of the following factors:

- (1) the buyer’s market options for its output;
- (2) the producer’s ease of switching outlets or product lines;
- (3) the quantities that the buyer takes from any one producer as a percentage of its purchases of that input; and
- (4) the percentage of its own output that a producer sells to a single buyer.”¹⁰⁸¹

In its report on the supply of groceries, the UK Competition Commission investigated the degree of buyer power of grocery retailers vis-à-vis suppliers. The Commission tries to define “buyer power” tautologically as being able to “obtain a better deal from its suppliers in terms of prices, product quality or purchasing terms, for example, compared

Antitrust Bulletin 710.

1079 The Economist, ‘The world’s most valuable resource is no longer oil, but data’, (May 6th, 2017).

1080 See the literature on market manipulation, providing evidence that firms take advantage of the specific characteristics of consumers and manipulate their cognitive biases, which may be extended to platform to business transactions, when digital platforms dispose of superior bargaining power: J.D. Hanson & D. A. Kysar, Taking Behavioralism Seriously: Some Evidence of Market Manipulation, (1999) 112 Harvard Law Rev. 1420; R. Calo, Digital Market Manipulation, (2014) 82 The George Washington Law Rev. 995; E. Kamenica, S. Mullainathan & R. Thaler, Helping Consumers Know Themselves, (2011) 101(3) American Economic Review: Papers & Proceedings 417 (noting that “when the seller has more information about expected usage than the customer, they may try to exploit this information by targeting specific offers to specific consumers” and raising the problem of “adverse targeting”, that is the ability of sellers “to use this informational advantage to construct special offers that the consumers will overvalue”; Ph. Hacker & B. Petkova, Reining in the Big Promise of Big Data: Transparency, Inequality, and New Regulatory Frontiers, (2017) 15 Northwestern Journal of Technology and Intellectual Property (not yet published, available at the SSRN). See the recent ideas to regulate from a fairness perspective platform to business relations (see, Inception Impact Assessment, Fairness in Platform to Business Relation, Ares(2017)5222469, available at https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5222469_en (raising interesting questions as to the interaction of competition law and other forms of economic regulation in order to tame the superior bargaining power of digital platforms).

1081 Peter C. Carstensen, Competition Policy and the Control of Buyer Power. A Global Issue (Edward Elgar 2017), ch. 3.

with grocery retailers that do not have buyer power". In its assessment of the grocery sector, the possession of buyer power by grocery retailers is assessed by looking at four types of evidence:

- (1) the relative size of grocery retailers compared to suppliers;
- (2) the prices and margins that suppliers are able to negotiate with grocery retailers;
- (3) the share of the retail price that is earned by grocery retailers and others; and
- (4) a review of e-mail correspondence between two retailers and their suppliers, including e.g. evidence of below-cost selling by suppliers that would be difficult to explain in the absence of retailer buyer power.

In Japan, abuse of a superior bargaining position is prohibited by the Antimonopoly Act.¹⁰⁸² In its Guidelines Concerning Abuse of Superior Bargaining Position under the Antimonopoly Act, the Japan Fair Trade Commission defines a superior bargaining position as follows. Party A has a superior bargaining position over Party B in the following situation: (1) Party A makes a request that is substantially disadvantageous for Party B, and (2) Party B would be unable to avoid accepting such a request on the grounds that Party B has difficulty in continuing the transaction with Party A and thereby Party B's business management would be substantially impeded.

The existence of a superior bargaining position is determined by considering four sets of facts, taking into account both structural and non-structural factors:

1. The degree of dependence by Party B on the transactions with Party A, which if Party B is the supplier is measured with reference to the amount of sales by Party B to Party A, divided by Party B's total amount of sales;
2. The structural market position of Party A, i.e. its market share and ranking;
3. The possibility of Party B to change its business by starting or increasing its transactions with another party other than Party A, for instance based on Party B's specific investments for its transactions with Party A;
4. Other factors indicating the need for Party B to carry out transactions with Party A, including for example the amount of transactions with Party A and the relative business size of Party A.¹⁰⁸³

In 2014, the German Bundeskartellamt concluded an in-depth study in the food retail sector, where it attempted to measure superior bargaining power ("demand side power" – "*Nachfragemacht*") econometrically by exploring the conditions of its existence.¹⁰⁸⁴ The

¹⁰⁸² Article 2 (9)(v) of the Act on Prohibition of Private Monopolization and Maintenance of Fair Trade.

¹⁰⁸³ Japan Fair Trade Commission, Guidelines Concerning Abuse of Superior Bargaining Position under the Antimonopoly Act (30 November 2010), p. 5-6, available at http://www.jftc.go.jp/en/legislation_gls/imonopoly_guidelines.files/101130GL.pdf.

¹⁰⁸⁴ Bundeskartellamt, Sektoruntersuchung Nachfragemacht Im Lebensmitteleinzelhandel (2014) B2-15/11 BKartA, available at http://www.bundeskartellamt.de/Sektoruntersuchung_LEH.pdf?__blob=publicationFile&v=7 (hereinafter

conditions of bargaining power were converted into independent variables used for the econometric assessment. The selection of the independent variables was performed on the basis of a survey. In particular, the Bundeskartellamt looked into the procurement market of branded products for several reasons, including the fact that they form the core business of retailers, they are at the center of the majority of competition complaints and they are easier to compare and identify.¹⁰⁸⁵ The authority initially divided the products object of negotiations into four categories: “product category,” “must-stock items,” “items listed at a discounter” and “high-turnover items.” Furthermore, they identified seven procurement markets with different market structures. In order to identify and order the branded products forming the statistical population belonging to the sample, the authority used the European Article Number (EAN). The authority then interviewed the retailers and manufacturers about the results of their negotiations on each EAN article. In particular, the Bundeskartellamt inquired about the switching possibilities to alternative negotiating partners and about the overall competitive environment. The authority noted that negotiations between producers and merchants take place once a year. In these negotiations producers and merchants bargain over the conditions for the business relationships of the following year. Yet, the Bundeskartellamt also acknowledged that the sole focus on procurement volumes is not sufficiently differentiated to provide valid conclusions for the definition and measurement of demand-side bargaining power. For its econometric assessment, the Bundeskartellamt considered different determinants in order to describe the individual bargaining position of each party and did not base itself only on market concentration and the existence of a monopoly or an oligopoly. The bargaining model construed on the basis of this theoretical approach can be summarized as following:

K [conditions of superior bargaining power] = $f(x \text{ [amount ordered]}; D^{1-6} \text{ [bargaining determinants, which indicates the “Drohpunkte” (threat points), that is, the best alternative to negotiate]})$ ¹⁰⁸⁶.

These are the following:

- Alternative distribution paths for producer p (other than with retailer r) or even alternative production paths (switching to different product) = outside options of producer;¹⁰⁸⁷

Bundeskartellamt Food Retail Report)

1085 The other market identified by the Bundeskartellamt is the one of private labels, which the authority describes as characterized by a different “bargaining logic,” although deeply influencing the negotiations for branded products. Private labels are usually bargained through tenders, while branded products are traded with annual negotiations. However, in its econometric study the Bundeskartellamt states that “private labels are actually considered in the assessment of the “competitive environment” of the branded products,” see Bundeskartellamt, Summary of the Final Report of the Sector Inquiry into the Food Retail Sector, 8. In this connection the Bundeskartellamt observes that private labels are often considered as part of a different market with respect to branded products. However, they can be often used in negotiations to put pressure on manufacturers of branded products, at 11.

1086 Hence, the Bundeskartellamt especially focusses on the walk-away point in the specific negotiation and how it is influenced by different factors for each party.

1087 Bundeskartellamt Food Retail Report, 321.

- Outside options of retailer: importance of the product for the retailer (is delisting a credible threat?);¹⁰⁸⁸
- Brand strength: if consumers expect certain brands, then delisting is improbable;¹⁰⁸⁹
- Competition by other producers/brands which creates opportunities for r to circumvent p;¹⁰⁹⁰
- r's own brands ("*Handelsmarken*"): these must be substitutable for brands of p, and p must not be (by chance) the actual producer of r's own brands; the Report notes the trend towards private labels even in the premium segment;¹⁰⁹¹
- Buyer cooperation: bundling buying power¹⁰⁹².

The conditions adopted for this analysis were not only price terms but also non-price terms, such as deadline for payment and agreements on delivery. A fundamental stage of the Bundeskartellamt's assessment was the reckoning of the importance of a retailer for its suppliers and the evaluation of the "outside options" of both parties. The definition of "outside option" given by the authority resembles closely to the one of the BATNA, "*the better a party's outside options, the better the conditions that party is able to negotiate.*"¹⁰⁹³ Not surprisingly, the Bundeskartellamt concluded in this study that the purchasing volumes "*have a decisive impact on the negotiating conditions,*"¹⁰⁹⁴ and therefore constitute one of the main advantages of major retailers vis-à-vis their smaller competitors in negotiations. Furthermore, the authority determined that the well-known branded products "*the delisting of which would most likely result in a disproportionate decline in turnover for that retail company, has the effect that its manufacturer is able to achieve better conditions.*"¹⁰⁹⁵ In such cases, the producer is in a stronger bargaining position, since the retailer has no BATNA.¹⁰⁹⁶

1088 Bundeskartellamt Food Retail Report, 322.

1089 Bundeskartellamt Food Retail Report, 323.

1090 Bundeskartellamt Food Retail Report, 324. However the Bundeskartellamt states that this is only true if two conditions are assumed. Firstly the other brand has to pose a sufficient substitution to the article which is the subject of the negotiations and secondly that the producer of the relevant article is not also the producer of the alternative trade brand. The Bundeskartellamt measures the value of this influence with the help of a survey in which the undertakings were asked to assess the importance of alternative brands. Furthermore the survey asked for an assessment of the substitutability of the specific article through the alternative on a scale from 0% to 100 %..

1091 Bundeskartellamt Food Retail Report, 324-325.

1092 Membership in a buyer group reduces the outside-options of the supplier and thereby may lead to better conditions for the demand side. The impact of the membership is measured by adding a variable which is 1 for "yes" and 0 for "no". In a second step it is measured whether an undertaking is a "big" or a "small" member of such a group. Thereby a variable only gets the value one, when the undertaking is not the one with the highest turnover in the group.

1093 Bundeskartellamt, Summary of the Final Report of the Sector Inquiry into the Food Retail Sector, 10.

1094 Bundeskartellamt, Summary of the Final Report of the Sector Inquiry into the Food Retail Sector, 10.

1095 Bundeskartellamt, Summary of the Final Report of the Sector Inquiry into the Food Retail Sector, 10.

1096 However, these so-called "must-have" products accounted only to 6% of the sample adopted by the authority that, according to the same authority, can be reasonably taken as representative of the whole food-retail national market.

In a 2012 sector inquiry, the Italian Competition Authority studied the bargaining power of retailers and suppliers on the basis of three different “clusters” of undertakings, reaching comparable results.¹⁰⁹⁷ These “clusters” were obtained by comparing several data, including the overall turnover, the number of retailers supplied, the “strength” of the brand (especially in the specific geographic area). In particular, these three groups or “clusters” were: i) undertakings with high bargaining power; ii) undertakings with medium bargaining power and iii) undertakings with low bargaining power.¹⁰⁹⁸ The data published by the ICA relatively differs from that of the Bundeskartellamt, but still shows a situation of prevalence of retailers’ superior bargaining position, irrespective of market concentration levels. On the basis of their clusters, the ICA concluded that in the 23.4% of their sample, the supplier holds a strong bargaining position (not necessarily stronger than the retailer) and is not economically dependent on the retailer. In the 48.8% of cases, the suppliers showed an intermediate degree of dependence from the retailers. Finally, the 27.8% of the sample highlighted a high level of dependence.¹⁰⁹⁹

Both studies by the German and the Italian competition authorities engage with what may be considered as captive value chains in the GVC approach terminology and attempt to develop appropriate measurement tools for superior bargaining power that could be useful in also assessing vertical power (see Section X in this report).

4.5.3.4. Panopticon power

The power of specific nodes (actors) does not always result from the dependency of the other nodes of the network to which it forms part, for instance because of certain individual characteristics of this specific actor. Their influence may stem from their strategic position in the network. For instance, this position may enable them to extract an information advantage vis-à-vis potential adversaries, what Farrell and Newman call the ‘panopticon effect’ in reference to the institutional building and a system of control designed by English philosopher Jeremy Bentham¹¹⁰⁰. Panopticon power may emerge in situations where there is significant and growing learning-by-doing asymmetry between the actor benefitting from this position in the network and the other nodes in the network. In view of the importance of hubs in a decentralised communications structure, Farrell and Newman explain that ‘hub nodes can use this influence to obtain information passing through the hubs’¹¹⁰¹. These actors may therefore tap, because of their positioning in the network, into the information gathering and generating activities of the whole network, well beyond the nodes with which they have direct, or even indirect, relations. Hence, despite the function of such actors as simple intermediaries providing an infrastructure of communication, their influence can be quite significant. Panopticon power thus results from the position of an actor in a network and is not related as such

1097 Italian Competition Authority, Market Investigation in the Retail Sector (2012).

1098 Italian Competition Authority, Market Investigation in the Retail Sector (2012), 162.

1099 Italian Competition Authority, Market Investigation in the Retail Sector (2012), 162.

1100 H. Farrell & A. L. Newman, *Weaponized Interdependence: How Global Economic Networks Shape State Coercion*, (2019) 44(1) *International Security* 42, 46.

1101 *Ibid.*, 55.

to the existence of some form of dependence. It is possible that the different actors in a network voluntarily agree to share information through the hub, for instance because they trust it better than a direct communication between them, or because it is more convenient to do so. Although each of these nodes is not dependent on the hub, assuming that there are other available, and therefore in the context of their dyadic relation the hub does not have power, taking into account the fact that the actor also serves as a hub for a number of other interactions may provide that actor some superior and more complete information on the strategies of the other members of the network, including its adversaries, in case these have communication interactions with some of the nodes also communicating with the hub.

4.5.3.5. Architectural power

Competition fights are not only won through the use of traditional strategic competitive advantage, in terms of lower costs, higher quality products etc. Increasingly, firms engage with the overall structure, economic and legal, of the industry in which they are active seeking opportunities to frame their architecture in a way that favors their position. This quest for architectural advantage, which is particularly important in competitive fights in the context of ecosystems, hints to a different dimension of economic power, not usually taken into account by the traditional competition law metrics, architectural power. To the extent that this architectural power emanated from the central positioning of platforms in ecosystems, it has also been referred to as ‘positional’ power. This does not necessarily relate only to the position of an undertaking as an indispensable intermediary, although this may constitute a source of architectural advantage, but relates to the overall position of centrality of the platform or specific undertaking in the industry architecture. We will briefly explore the concepts of industry architecture and architectural power, before making some comments on the possible metrics that may be employed to assess it.

In addition to competitive strategies that engage directly with the actual and potential sources of competition, a firm may also acquire a durable competitive advantage if it holds a position that enables it to reshape the ‘industry architecture’ in its own advantage. The concept of ‘industry architecture’ follows David Teece’s seminal contribution on how profits from innovation and how the various governance arrangements between the innovator and other vertically-related firms may influence the distribution of these innovation gains¹¹⁰². Teece suggested a theoretical framework. First, it focuses on the co-specialization of firms so that their assets are tailored to each other and the firms develop a high degree of complementarity, as the combination of assets yields a higher value. Second, it focuses on ‘factor mobility’, which relates to the ability of a firm to appropriate value without necessarily owning the complementary asset. Teece focused on the dyadic relation between the innovator and outside asset holders finding that complementarity usually leads to lower factor mobility. However, more recently,

1102 David Teece, “Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy”, (1986) 15(6) Research Policy, 285.

Michael Jacobides et al. disentangled the two constituent components of co-specialization by finding that a firm may manage to “obtain *both* high complementarity *and* high mobility in their vertically adjacent segments”, which led him to expand Teece’s analytical framework beyond ‘dyadic relations’ to also cover the ‘industry architecture’, which is “the various templates circumscribing the division of labor among co-specialised firms at the level of an industry, or economic sector”¹¹⁰³. According to Jacobides et al.,

“(t)he concept of industry architecture (‘IA’) describes how labor is typically organized and structured within an industry (‘who does what’) and which firms capture value and profit as a result (‘who takes what’). It encompasses features such as the degree of vertical integration, the division of labor between firms and the ‘rules and roles’ that determine how firms interact and the business models, available to them. While IA reflects the conditions under which firms operate, it is influenced, in the medium term, by firms’ attempts to reshape those conditions to their own advantage”¹¹⁰⁴.

As Jacobides further explains, “(a)rchitectures provide the contours and framework within which actors interact: they are usually partly designed (e.g. by regulation or *de facto*, by standards), and partly emergent (by the creation of socially understood templates and means to coordinate economic activities)”¹¹⁰⁵.

Industry architecture is framed by the various economic actors at the birth of a new industry, the new players defining the interfaces (technological, institutional or social) that allow different entities to co-specialize and divide labor¹¹⁰⁶. As the industry progressively matures, we observe the emergence of ‘winners’ who strive to frame the industry architecture in their own advantage by developing complex strategies. The objective of these strategies is to capture a disproportionate amount of the surplus value created by the innovation.

Industry architectures are not meant to last forever, although they tend to be relatively stable for some time once the technology has sufficiently diffused. There are various reasons for this stability, such as the requirement for any new technology to be interoperable with the technical standards of the industry architect who benefits from an installed base, the quality certification barrier from which the technologies of the industry architect benefit, to the extent that consumers’ expectations have been framed according to the industry architect’s quality standard, the favorable legal framework from which the industry architect benefits as it may have been framed so to respond to the risks generated by the technology of the incumbent or to accommodate the needs of the industry architect. However, as Jacobides et al. observe, “(i)ndustry architectures

1103 Michael Jacobides, Thorbjørn Knudsen and Mie Augier, “Benefiting from Innovation: Value Creation, Value Appropriation and the Role of Industry Architectures”, (2006) 35 Research Policy, 1201.

1104 Michael Jacobides, “Industry Architecture” in *The Palgrave Encyclopaedia of Strategic Management* (edited by Mie Augier and David Teece, Palgrave Macmillan, London, 2016).

1105 M.G. Jacobides, T. Knudsen & M. Augier, Benefiting from innovation: Value creation, value appropriation and the role of industry architectures, (2006) 35 Research Policy 1200, 1203.

1106 Ibid.,

can...also change whenever new ways are found to put together the various industry participants: legal innovations that alter transaction costs..., new ways of safeguarding against loss from transactional hazards..., and technical innovations that alter the payoff to bundling specialized production factors...could inspire adjustment of an industry's architecture"¹¹⁰⁷. This shift from the dyad to industry-wide networks of relationships regarding the allocation of the financial returns of innovation also explains the reason for the competitive game being more complex and wider than the usual focus of competition law on a relevant market.

Various factors may influence industry architecture. One is technological path dependence which results from a self-reinforcing process triggered by an event, such as a first mover advantage leading to the choice of a widely used technology standard, which leads to a 'lock-in' to a less optimal, from a quality of technology perspective, equilibrium, without that being the intention of the agents at the first place¹¹⁰⁸. The legal/ regulatory framework may also play a crucial role in the definition of the boundaries of an industry and of its governance. Quite often it supports the existing industry architecture. Finally, path dependence and 'lock-in' may result from intentional strategies seeking to manipulate the industry architecture so to create a bottleneck. This is a segment of the value chain where there is limited mobility¹¹⁰⁹. The firm controlling the bottleneck is in a position to extract all surplus value in the specific segment as well as a higher percentage of the surplus generated by innovation in vertically adjacent segments¹¹¹⁰. This may take different forms, such as manipulating the setting of technology standards as often standards shape industry architecture or influencing the regulators and/or the legislative framework shaping the architecture of the industry, either directly through lobbying activity and pressure groups or indirectly by developing a narrative that will catch the imagination of policy-makers and legislators so that the emergent regulatory framework serves the interests of industry architect.

In conclusion, being in a position to influence the way the industry is organized or structured and the value allocation between the industry (or ecosystem) actors, provides 'architectural advantage'¹¹¹¹. This may be a quite important source of sustainable abnormal profits. This is probably the reason why 'architectural fights'¹¹¹² have characterized the evolution of all industries. The competition to become the industry architect plays a crucial role in periods of profound technological transformation, such as the development of new GPTs; in periods when new technologies that confer significant advantages, such as reducing costs or increasing productivity are progressively integrated in

¹¹⁰⁷ Ibid, fn 3.

¹¹⁰⁸ B. Arthur, *Competing Technologies, Increasing Returns, and Lock-In by Historical Events*, (1989) 99(394) *The Economic Journal*, 116, 116.

¹¹⁰⁹ M.G. Jacobides, T. Knudsen & M. Augier, *Benefiting from innovation: Value creation, value appropriation and the role of industry architectures*, (2006) 35 *Research Policy* 1200, fn 13.

¹¹¹⁰ Ibid., 1208.

¹¹¹¹ Ibid, 1200.

¹¹¹² Ibid, fn 13.

the production process in the context of a specific industry¹¹¹³. These technologies offer a higher rate of return on investment and often attract capital from other industries. In the context of the inter-industry competition that is one of the characteristics of financial capitalism¹¹¹⁴. The important role of financial markets in the development of the digital economy and the monetization of digital inputs also shifts attention away from the traditional focus of competition law on competition within an industry, to competition between industries, capital (in the sense of value-enhancing activity, which does not constitute labor) moving from one industry to another in search of higher profits. The concept of 'ecosystem' offers an additional space where intra- and inter-industry competition occurs.

According to the architectural advantage approach, the boundaries of an industry should not be considered as a given. Firms with superior performance (due to superior resources and capabilities¹¹¹⁵) aim to shape 'industry architectures' in a way that provides them control of a 'bottleneck', i.e. that would enable them to leverage their position of strength over all other companies that collaborate with them in the creation of surplus value¹¹¹⁶. Hence, to understand this process of value extraction that motivates strategies of competition, it is important to analyze the market level and the industry and eco-system levels. It also challenges the idea that there are cycles in the life of an industry: an industry being marked by a dominant design, with an established hierarchy and stable market shares that slowly erodes as the industry matures with product innovation mainly occurring through new entry. According to this view, the competition of capabilities takes place not only at market or segment level (e.g. among mobile handset manufacturers) but also at the value-chain level (e.g. among mobile handset manufacturers, network providers, content providers etc.). Contrary to (industrial) economics, which assumes that "(f)irms compete only within a market, and it is their performance, within that market, relative to other firms, that determines their profitability", the architectural advantage perspective focuses on the role of vertical competition and the way this affects the relative proportion of value (i.e. the 'NPV of future profits') that each segment captures, which may lead to important value shifts from one part of the value chain to another. The firms acquiring architectural advantage (the 'kingpins') take a central role in the overall industry architecture, influencing not only the segment they belong to but also multiple segments within a single industry or ecosystem¹¹¹⁷.

However, acquiring a bottleneck is not the only way architectural advantage converts to abnormal profits. Focusing on the appropriation of value from other value chain participants makes sense if one conceptualizes competition (horizontal or vertical) as essentially a process taking place on product or technology markets or eco-systems and

1113 Charles Ferguson and Charles Morris, "How Architecture Wins Technology Wars", (1993) 71(2) Harvard Business Review, 86.

1114 Anwar Shaikh, *Capitalism: Competition, Conflict, Crises* (Oxford University Press, 2016).

1115 Birger Wernerfelt, "A Resource-Based View of the Firm", (1984) 5(2) Strategic Management Journal, 171; C. K. Prahalad and Gary Hamel, "The Core Competence of the Corporation", (1990) Harvard Business Review, 79.

1116 Michael Jacobides and Jennifer Tae, "Kingpins, Bottlenecks, and Value Dynamics Along a Sector", (2015) 26(3) Organization Science, 889.

1117 Ibid.

focusing on capturing value through the protection and/or leveraging of innovation. However, value may also be created by “investing in assets that will appreciate”¹¹¹⁸ and will, thus, increase the market value of the firm from the perspective of financial markets. Jacobides et al. note how this “subtle shift of mindset from profit (and isolating mechanisms) to wealth creation (and the potential for asset appreciation)”, explains why an industry architect may favor imitation by competitors, even if this reduces profitability, provided this strategy of openness increases the value of the underlying assets¹¹¹⁹.

4.6. Digital value chains as a new mapping tool in competition law: concept and metrics

A tool aiming to map the inter-firm networks on a global scale, the Global Value Chain (GVC) approach may also apply to explore a number of factors that may influence competitive interactions in the digital economy. We will refer to this specific application of the GVC approach as Digital Value Chains. Although the GVC tool was initially framed with the aim to assist policy-makers to design industrial strategies geared towards a greater participation of firms, active in their jurisdiction, to the global economy, its descriptive potential is wider. By exploring the sequences of tangible and intangible value adding activities, “from conception and production to end use”, GVC analysis offers a picture of global value creation and extraction both “from the top-down”, by examining for instance “how ‘lead firms’ govern their global-scale affiliate and supplier networks”, but also from “the bottom-up”, asking “how these business decisions affect the trajectory of economic and social ‘upgrading’ or ‘downgrading’ in specific countries”¹¹²⁰. We consider that the value chain approach may provide a quite useful tool in order to map horizontal and vertical competition in the context of the rapidly evolving digital economy, where various industrial structures begin to overlap. This process of convergence challenges the traditional definition of an industry by Michael Porter as ‘a group of companies offering products or services that are close substitutes for each other, that is, products or services that satisfy the same basic customers’ needs’ and the emphasis put on industry borders that, it is often assumed, have already been drawn¹¹²¹. Although it has long been accepted that the concept of industry is not useful, as ‘(q)uestions relating to competition, monopoly and oligopoly must be considered in terms of markets’¹¹²², in the fast moving world of digital competition who is a competitor, an existing firm or potential competition is often quite difficult to determine. For this reason, and in or-

1118 Jacobides et al., (115), 1201.

1119 Ibid, 1212.

1120 G. Gereffi and K. Fernandez-Stark, *Global value Chain Analysis: A Primer* (CGGC: 2nd ed., 2016), p. 7

1121 M. Porter, *Competitive Strategy* (Free Press, 1980)

1122 J. Robinson, *The Industry and the Market*, (1956) 66(262) *The Economic Journal* 360, 361. See also, E. Chamberlin, *product Heterogeneity and Public Policy*, (1950) 40 *American Economic Review* (Papers & Proceedings) 85, 86-87 noting that “(i)ndustry’ or ‘commodity’ boundaries are a snare and a delusion – in the highest degree arbitrarily drawn, and wherever drawn, establishing at once wholly false implications both as to competition of substitutes within their limits, which supposedly stops at their borders, and as to the possibility of ruling on the presence or absence of oligopolistic forces by the simple device of counting the number of producers included”.

der to map the complexity of the digital economy, and the various feedback loops in operation, it becomes essential to have recourse to new mapping tools, such as global value chains. These tools do not only serve the purpose of a better visualisation of the processes of horizontal and vertical competition. They also enable to better assess the bargaining asymmetries across the various segments of the value chain that may result either from the lack of competition on the markets affected or from the central position of some actors in the specific network and their positioning in the value chain. This tool may complete the market definition tool and brings to the centre of competition law enforcement the various dimensions of vertical (non-structural) power. We conclude with some suggestions as to the development of adequate metrics for vertical power, which if found to exist may trigger a more thorough competition law assessment of the specific business conduct.

4.6.1. Digital Value Chains as a new mapping tool

This mapping approach examines various dimensions: (i) the input-output structure of a GVC, by focusing on the process of transformation of raw materials and factors of inputs of production to final products, (ii) the geographic scope of GVCs which explains the degree of global dispersion of the chain, (iii) the governance structure of the GVC, which delves into the issue of control of the chain, (iv) the upgrading, which describes “the dynamic movement within the value chain” and “how producers shift between different stages of the chain”, their aim being to move to higher added value activities, (v) the local (or global) institutional context in which the value chain is embedded, including regulation and self-regulation, (vi) industry stakeholders that may be various local (but also global) actors of the value chain that interact to achieve upgrading. These may not only be companies, but also industry associations, workers, educational or research institutions, government agencies and ministerial departments. All these actors are involved to a certain degree in the operation of the global value chains and influence their development.

The framework shares Michael Porter’s emphasis on “*value systems*” a concept that has been used in order to describe a set of inter-firm linkages through which different economic actors (and their value chains) are interconnected.¹¹²³ GVC’s “holistic view” of global industries focuses on the governance of the value chain, that is, how some actors can shape the distribution of profits and risks in the chain. Taking a political economy perspective, the GVC approach explores the way economic actors may maintain or improve (“upgrade”) their position in the global value chain, “*economic upgrading*” being defined as “*the process by which economic actors—firms and workers— move from low-value to relatively high-value activities in GVC.*”¹¹²⁴ There are different types of upgrading: some relate to the entry in the value chain, where firms participate for the first time in national, regional or global value chains, others to “end-market upgrading”, firms moving into more

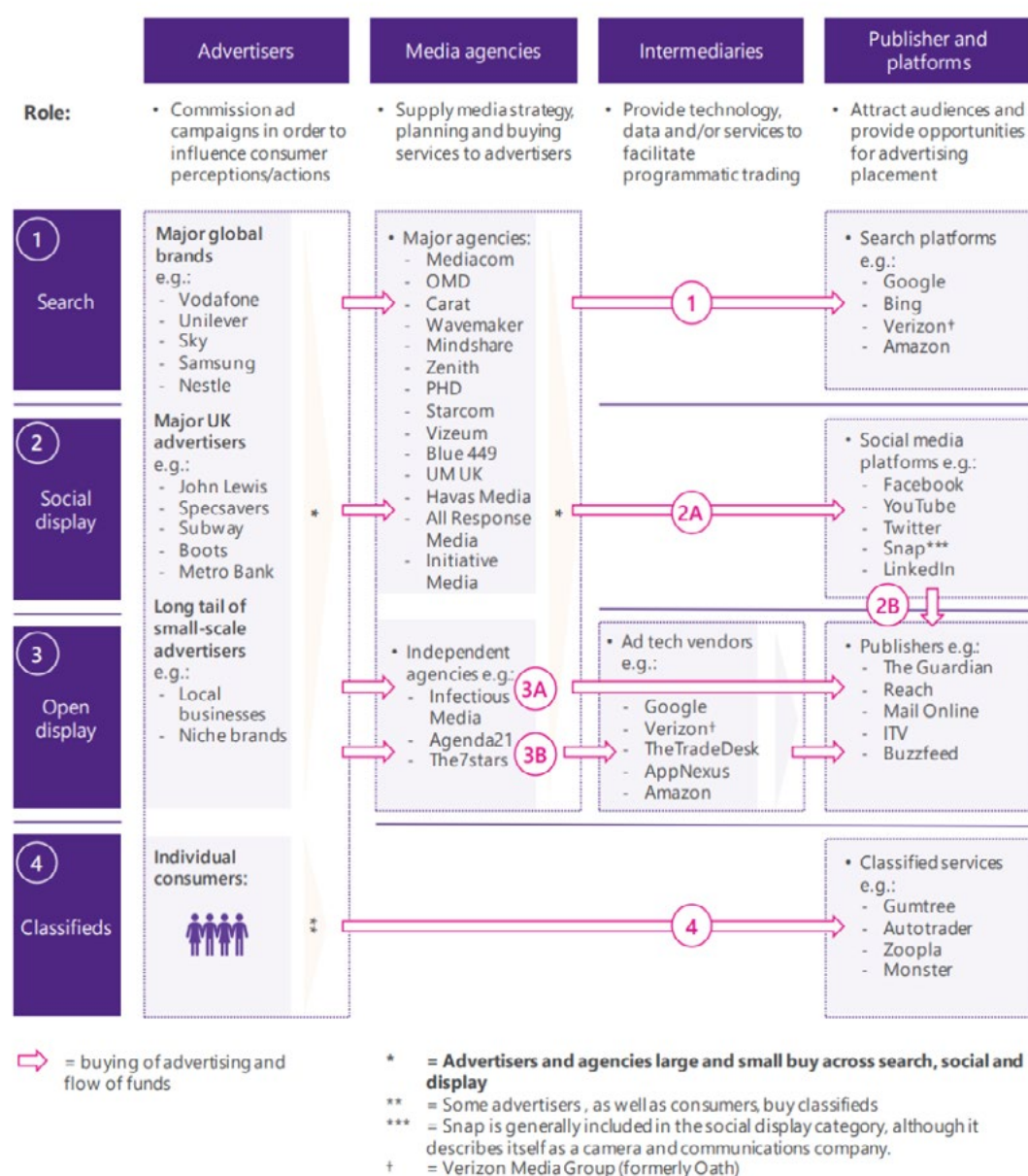
1123 M. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: Free Press, 1985).

1124 G. Gereffi, *Global value chains in a post-Washington Consensus world*, (2014) 21(1) *Review of International Political Economy* 9-37, 18.

sophisticated markets that require compliance with new, more rigorous quality standards, or into larger markets that call for important investments in production scale¹¹²⁵.

The tool has been increasingly used by competition authorities, in the context of market investigation references or sector enquiries¹¹²⁶. The Furman report also recommended the completion of a market study by the CMA on the entire value chain of digital advertising (see Figure 4.20.). However, the tool has not been systematically used in infringement cases, most likely because of the emphasis put on horizontal competition and not vertical competition.

Figure 4.20. : The digital advertising value chain



Source: Furman report, 14 (citing research completed by Plum Consulting).

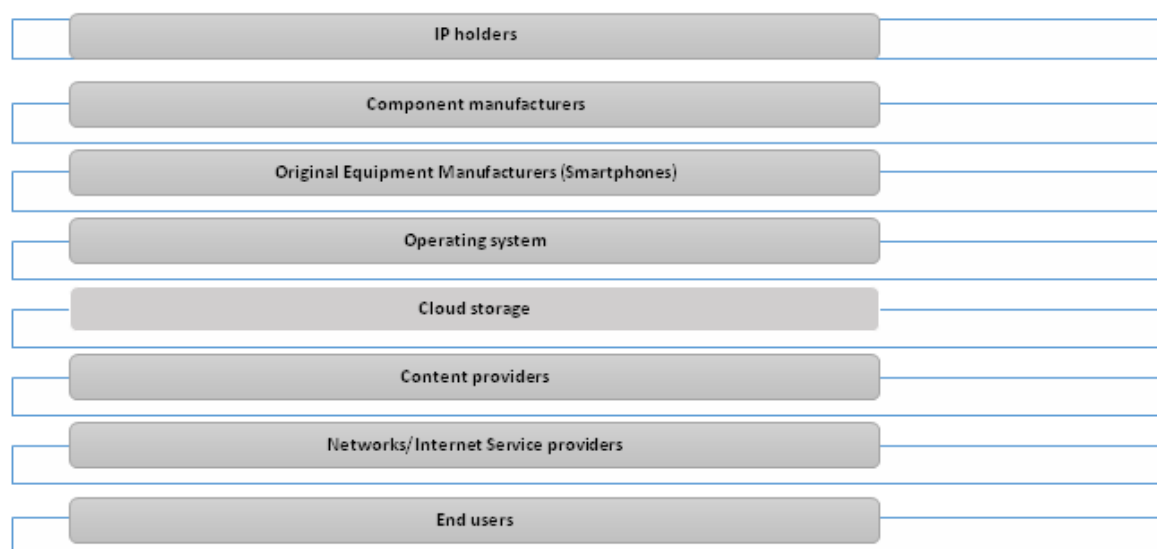
1125 G. Gereffi and K. Fernandez-Stark, *Global value Chain Analysis: A Primer* (CGGC: 2nd ed., 2016), p. 12.

1126 See, for instance, the Competition Commission of South Africa, *Data Market Inquiry Provisional Findings and Recommendations* (April 24, 2019), 25.

The smartphone industry also provides an interesting area for value chain analysis. The following account shows an evolving connection between the physical and digital aspects of value chains; this connection has followed the transition from basic mobile phones to smartphones¹¹²⁷. Prior iterations of this value chain show a preference for a number of more or less vertically-integrated undertakings, including the design and assembly of the final product as well the software implementation.¹¹²⁸

The dissection of the smartphone value chain into its segments is facilitated by loosely following a hardware/software division. This mirrors a 'solution stack' approach, which comprises of hardware (ie smartphone sub-components), device (the end-user machine), software (the operating system and other capabilities), services (cloud storage, navigation, etc) and content (apps). (see Figure 4.21.)¹¹²⁹

Figure 1: Example of a value chain (simplified)



Source: Author's compilation

For the present illustrative purposes, the smartphone value chain will be considered on the basis of three segments: smartphone manufacturing/assembly, software development, and distribution and network connectivity.¹¹³⁰

The first segment, smartphone manufacturing and assembly, involves firms that are involved in the physical creation of the smartphone. Different value chains and ecosys-

1127 Commission Staff Working Document, Online Platforms SWD(2016) 172 final, 23.

1128 J. Dedrick, K.L. Kraemer, G. Linden, The distribution of value in the mobile phone supply chain (2011) 35 Telecommunications Policy 505-21.

1129 Commission Staff Working Document, Online Platforms SWD(2016) 172 final, 23; R. Manchiganti, On emerging business ecosystems in the mobile device industry; Evaluation of current and emerging mobile phone ecosystems, (2013) Massachusetts Institute of Technology. Retrieved from: <https://dspace.mit.edu/handle/1721.1/9069>.

1130 See for example J. Lee & G. Gereffi, 'The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries' (2013) Capturing the Gains Working Paper 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510> ; A.T. Kearney, 'The Internet Value Chain' (GSMA, May 2016) <www.gsma.com/publicpolicy/internet-value-chain-study-economics-internet> .

tems intersect this segment, involving for example the sourcing of the necessary input materials, or the production of certain hardware parts such as integrated circuits, memory chips, semiconductors, and cameras.¹¹³¹ In terms of components suppliers, there are some important players that affect this segment as a whole, including Qualcomm, Samsung Electronics, Intel, Texas Instruments.¹¹³²

The manufacture process proper involves a number of players, such as lead-firms (including two prominent companies like Samsung and Apple),¹¹³³ electronic manufacturing services (EMS) firms (such as Foxconn and Flex), and original design manufacturers (ODM) firms.¹¹³⁴ Although once focused on building their own devices, lead-firms started outsourcing this part of the process to EMSs and ODMs,¹¹³⁵ providing instead “market knowledge, intellectual property” including a strong, reputable brand.¹¹³⁶ On the other hand, EMSs and ODMs have also developed capabilities beyond assembly into component manufacturing and design of devices.¹¹³⁷ Different lead-firms have emerged in order to cater for different consumers, offering low-cost solutions or adopting online-only retail channels (as seen in Xiaomi).¹¹³⁸

The second segment of the value chain is software development. Firms that affect this segment can be subdivided in three categories, according to whether they provide a smartphone operating system, standalone software, applications (apps) and their marketplaces.

Operating system (OS) firms deliver a core foundational technology at the base of the functionality of smartphone devices. Some of the crucial players in this category include Apple with its iOS and Google with Android.¹¹³⁹ There are some differences in the business models of OS firms¹¹⁴⁰:

- Manufacturer-built proprietary OSs are designed by developers who are also the lead-firm (Apple’s iOS and the BlackBerry OS);

1131 M. Kenney & B. Pon, Structuring the Smartphone Industry: Is the Mobile Internet OS Platform the Key? (2011) 11(3) *Journal of Industry, Competition and Trade* 239-61, 241.

1132 J. Ali-Yrkkö, P. Rouvinen, T. Seppälä, P. Ylä-Anttila, Who Captures Value in Global Supply Chains? (2011) ETLA Discussion Papers No 1240 <www.etla.fi/en/publications/dp1240-en/>.

1133 J. Lee & G. Gereffi, ‘The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries’ (2013) *Capturing the Gains Working Paper* 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510>

1134 *ibid.*

1135 *ibid.*

1136 J. Dedrick, K.L. Kraemer, G. Linden, The distribution of value in the mobile phone supply chain (2011) 35 *Telecommunications Policy* 505, 507.

1137 J. Lee & G. Gereffi, ‘The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries’ (2013) *Capturing the Gains Working Paper* 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510>.

1138 A. Kharpal, What’s behind rapid rise of ‘China’s Apple’ Xiaomi? (CNBC, 22 December 2014) <www.cnn.com/2014/12/22/whats-behind-rapid-rise-of-chinas-apple-xiaomi.html> .

1139 B. Pon, T. Seppälä, M. Kenney, Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world (2014) 38 *Telecommunications Policy* 979-91.

1140 Commission Staff Working Document, *Online Platforms SWD(2016) 172 final*, 24.

- Third-party proprietary OSs are designed by developers who license the OS, usually for a fee, to third-party hardware manufacturers (Microsoft's Windows OS);
- Open source Oss are designed by developers who release the OS via the open source license method (for eg Google Android).

In practice, the choice of whether to exploit the operating system has impacted other companies. Amazon and Xiaomi, for instance, have used open-source Android to build their own proprietary system above it, thereby adding an element of complexity to the operating system category.¹¹⁴¹

Firms in the standalone software category provide software that is deemed necessary in smartphones. In the past, in particular, smartphone devices included such software as Adobe Systems' Acrobat Reader.¹¹⁴²

Another important category of firms in this segment includes apps and their online marketplaces. An app is defined as a "standardised piece of software that runs on a computing platform,"¹¹⁴³ that is provided over the internet and through centralised online marketplaces.¹¹⁴⁴ Thus, apps are surrounded by a whole ecosystem of actors such as developers and network operators, each playing an important role. Network operators, for example, may preload a particular app marketplace on models of smartphones they sell.¹¹⁴⁵ Apps marketplaces, (including the likes of App Store, Google Play, or Windows Phone Store) vary in terms of their exclusivity to a particular operating system and revenue models. Users of Apple and Windows, for example, need to get their app content through the dedicated marketplace; conversely users of Google can use the official Google Play as well as other important marketplaces (Amazon, Xiaomi, GetJar).¹¹⁴⁶ Certain app marketplaces are also offering apps, designed in the latest markup languages to present content, in order to be more "OS-agnostic" and fit in different operating systems.¹¹⁴⁷ In terms of revenue, a number of apps marketplaces (such as Google Play and App Store) adopt a revenue-sharing model, whereby a share ca. 70% is normally passed to developers.¹¹⁴⁸

The third segment of the value chain is distribution and network connectivity. The principal firms in this segment are network operators, who have the double function of distribution/sale of smartphone devices as well as operating their connectivity to the

1141 *ibid.*

1142 J. Ali-Yrkkö, P. Rouvinen, T. Seppälä, P. Ylä-Anttila, *Who Captures Value in Global Supply Chains?* (2011) ETLA Discussion Papers No 1240 <www.etla.fi/en/publications/dp1240-en/>.

1143 OECD, 'The App Economy' (2013) OECD Digital Economy Papers No 230, 8 <www.oecd-ilibrary.org/science-and-technology/the-app-economy_5k3ttftlv95k-en> ('The App Economy').

1144 B. Pon T. Seppälä, M. Kenney, 'One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud' (2015) 15 *Journal of Industry, Competition and Trade* 21-33; OECD, 'The App Economy', 8.

1145 *Ibid.*

1146 *Ibid.*

1147 *Ibid.*

1148 J. Oh, B. Koh & S. Raghunathan, 'Value appropriation between the platform provider and app developers in mobile platform mediated networks' (2015) 30 *Journal of Information Technology* 245-59.

infrastructural network.¹¹⁴⁹

The first function is illustrated by the combination of subsidisation of smartphones devices, customer locked SIM cards, and device exclusivity.¹¹⁵⁰ The subsidisation is then recouped through a contract that provides for a monthly subscription fee.¹¹⁵¹ The second function, instead, does not include only voice and message services but also connectivity for the delivery and support of apps, which in turn rely on a stable and reliable service.¹¹⁵² The network operators that also control the network infrastructure are entrusted with the management and prioritisation of streams of data – an issue that has been flagged as raising potential network neutrality considerations.¹¹⁵³ Companies that operate in this segment include established players (such as Telefonica, TMobile, Verizon Wireless, China Mobile) as well as more recent entrants, including MVNOs and other companies (like Google) who have made investments in wireless and fibre optic cable.¹¹⁵⁴

The issue of value extraction in the smartphone value chain is multifaceted, with many aspects and recent developments that have somewhat confused the picture.

In terms of the smartphone manufacture/assembly, lead-firms tend to extract a greater share as they control intellectual property, design, branding and all other high-value aspects.¹¹⁵⁵ This is to the detriment of contract manufacturers or outsourcing companies that merely provide assembly.¹¹⁵⁶ However, two relevant trends have emerged in recent times that may contradict this illustration. First, convergence in handsets design and specifications could mean that outside of the top-two lead-firms (Apple and Samsung), competing companies could struggle in extracting higher shares, particularly if they are

1149 M. Kenney & B. Pon, Structuring the Smartphone Industry: Is the Mobile Internet OS Platform the Key? (2011) 11(3) Journal of Industry, Competition and Trade 239-61; A.T. Kearney, 'The Internet Value Chain' (GSMA, May 2016) <www.gsma.com/publicpolicy/internet-value-chain-study-economics-internet>.

1150 GSMA Intelligence, 'Understanding SIM evolution' (GSMA Intelligence, March 2015) <www.gsmainelligence.com/research/2015/03/understanding-sim-evolution/499/>; Dedrick, K.L. Kraemer, G. Linden, The distribution of value in the mobile phone supply chain (2011) 35 Telecommunications Policy 505.

1151 M. Kenney & B. Pon, Structuring the Smartphone Industry: Is the Mobile Internet OS Platform the Key? (2011) 11(3) Journal of Industry, Competition and Trade 239-61.

1152 OECD, 'The App Economy' (2013) OECD Digital Economy Papers No 230, 8 <www.oecd-ilibrary.org/science-and-technology/the-app-economy_5k3ttftlv95k-en> ('The App Economy').

1153 N. Van Gorp & O. Bottura, 'Challenges for Competition Policy in a Digitalised Economy' (European Parliament, July 2015) 24 <[www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU\(2015\)542235](http://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2015)542235)>; OECD, 'The App Economy' (2013) OECD Digital Economy Papers No 230, 8 <www.oecd-ilibrary.org/science-and-technology/the-app-economy_5k3ttftlv95k-en> ('The App Economy'); B. Pon T. Seppälä, M. Kenney, 'One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud' (2015) 15 Journal of Industry, Competition and Trade 21-33, 29.

1154 A.T. Kearney, 'The Internet Value Chain' (GSMA, May 2016) <www.gsma.com/publicpolicy/internet-value-chain-study-economics-internet>; B. Pon T. Seppälä, M. Kenney, 'One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud' (2015) 15 Journal of Industry, Competition and Trade 21-33.

1155 J. Lee & G. Gereffi, The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries, (2013) Capturing the Gains Working Paper 25 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510;

1156 N. Shin, K.L. Kraemer & J. Dedrick, Value Capture in the Global Electronics Industry: Empirical Evidence for the "Smiling Curve" Concept, (2012) 19(2) Industry and Innovation 89-107.

“hardware-centric.”¹¹⁵⁷ Secondly, contract manufacture companies have moved to extract greater value through vertical integration, by specialising in component manufacturing and higher-value elements such as design; an instance of this is Foxconn that now provides an array of services to a significant number of lead-firms.¹¹⁵⁸

One solution that some firms in this segment have adopted to recapture value is the operation of a “hardware-software unit”. Although not universally accepted (as seen by Google’s sale of Motorola Mobility after acquiring it three years prior)¹¹⁵⁹ this solution suggests an important consideration: understanding how value is distributed requires the adoption of a multi-segment view of the value chain.

Platforms (like Microsoft, Google, and Apple) have managed to operate as multi-sides markets, extracting value by developing ecosystems that span across device, operating system and app marketplace, and thereby attracting “a range of complementors such as app developers, network operators, and device manufacturers.”¹¹⁶⁰ The control of these different elements has given platforms the flexibility to use them in the way they see most advantageous, locking-in firms in the various segments of the value chain, and benefiting from a mix of direct and indirect network effects as well as single-homing.¹¹⁶¹ In practice, one can see the realization of this strategy by looking at two diverging models.

On one side, Apple has opted to retain full control over the value chain, including hardware components, design, OS, app store, apps and “associated services (music, books, maps, mail, calendar, cloud storage, messaging, video calls).”¹¹⁶²

On the other side, Google has adopted an open-source, freely licensed model in respect of the Android OS. This approach has made the Android operating system popular with many smartphone lead-firms, while giving control to Google with regards to device certification (Android Compatibility Program).¹¹⁶³ This in turn has hindered other operating system firms (Windows Phone, Firefox, Tizen, and Ubuntu)¹¹⁶⁴ by limiting their business model or access to smartphone devices. At the same time however, Google has man

1157 Commission Staff Working Document, Online Platforms SWD(2016) 172 final, 22; B. Pon T. Seppälä, M. Kenney, ‘One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud’ (2015) 15 *Journal of Industry, Competition and Trade* 21-33; J. Russell, ‘Xiaomi stops disclosing annual sales figures as CEO admits the company grew too fast’ (TechCrunch, 11 January 2017) <<https://techcrunch.com/2017/01/11/xiaomi-2016-to-2017/>>.

1158 J. Lee & G. Gereffi, ‘The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries’ (2013) *Capturing the Gains Working Paper* 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510>; Dedrick, K.L. Kraemer, G. Linden, *The distribution of value in the mobile phone supply chain* (2011) 35 *Telecommunications Policy* 505.

1159 B. Pon T. Seppälä, M. Kenney, ‘One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud’ (2015) 15 *Journal of Industry, Competition and Trade* 21-33.

1160 Ibid; Commission Staff Working Document, Online Platforms, SWD(2016) 172 final, 22-25.

1161 See for example Commission Staff Working Document, Online Platforms SWD(2016) 172 final, 5, 24-25.

1162 Commission Staff Working Document, Online Platforms SWD(2016) 172 final, 26.

1163 B. Pon T. Seppälä, M. Kenney, ‘One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud’ (2015) 15 *Journal of Industry, Competition and Trade* 21-33.

1164 Ibid.

aged to retain control of the Android APIs benefiting the proprietary version of Android, limiting the connectivity value of the fully open source Android.¹¹⁶⁵

In terms of how network operators extract value in the value chain, a number of factors have emerged in recent years. Network operators have had a key role in the distribution and sale of smartphone devices.¹¹⁶⁶ Moreover, network providers (especially those with connectivity infrastructure) have featured, to a greater or lesser extent, flexibility and control in managing data streams.¹¹⁶⁷

Nonetheless, exclusivity contracts between network operators and popular smartphone devices have also resulted in network operators handing over significant rates in revenue-sharing plans to platforms or smartphone lead-firms;¹¹⁶⁸ moreover there have been cases suggesting that exclusivity now features less in relation to leading smartphones.¹¹⁶⁹ On the connectivity side, emerging apps and consumer preferences for content over the Internet have resulted in less control by network operators over the service that is provided to users, and this has affected the revenue streams of these companies.¹¹⁷⁰

Finally, one should note how Google and Apple may also have a greater impact on the role and value-extraction by network operators. Google has invested in connectivity infrastructure, perhaps with a view to decrease reliance on 3rd party networks,¹¹⁷¹ and both companies have individually invested on innovations that allow customers greater mobile network flexibility such as MVNO Project Fi (in the case of Google) and Apple SIM.¹¹⁷²

M&A transactions in the smartphone value chain have provided consolidation in some segments more than others. In respect of smartphone manufacture and assembly, some of the noteworthy acquisitions include Google's acquisition of Motorola, then sold to Lenovo.¹¹⁷³ Outside of such transactions, there has been a high level of market con-

¹¹⁶⁵ Ibid.

¹¹⁶⁶ J. Lee & G. Gereffi, 'The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries' (2013) Capturing the Gains Working Paper 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510>; Dedrick, K.L. Kraemer, G. Linden, The distribution of value in the mobile phone supply chain (2011) 35 Telecommunications Policy 505, .

¹¹⁶⁷ N. Van Gorp & O. Bottura, 'Challenges for Competition Policy in a Digitalised Economy' (European Parliament, July 2015) 24 <[www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU\(2015\)542235](http://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_STU(2015)542235)>.

¹¹⁶⁸ A. Becker et al., 'Aggregated Survey of Sustainable Business Models for Agile Mobile Service Delivery Platforms' (2012) 4 Journal of Service Science Research 97-121.

¹¹⁶⁹ Nextgen Clearing, 'Partnering for the future' (Nextgen Clearing, 2015) <www.nextgenclearing.com/about-us/thought-leadership/16-partnering-for-the-future> ; GSMA Intelligence (fn 143).

¹¹⁷⁰ A. Becker et al., 'Aggregated Survey of Sustainable Business Models for Agile Mobile Service Delivery Platforms' (2012) 4 Journal of Service Science Research 97-121; Nextgen Clearing, 'Partnering for the future' (Nextgen Clearing, 2015) <www.nextgenclearing.com/about-us/thought-leadership/16-partnering-for-the-future>.

¹¹⁷¹ B. Pon T. Seppälä, M. Kenney, 'One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud' (2015) 15 Journal of Industry, Competition and Trade 21-33.

¹¹⁷² Nextgen Clearing, 'Partnering for the future' (Nextgen Clearing, 2015) <www.nextgenclearing.com/about-us/thought-leadership/16-partnering-for-the-future> .

¹¹⁷³ B. Pon T. Seppälä, M. Kenney, 'One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud' (2015) 15 Journal of Industry, Competition and Trade 21-33.

centration in the case of two top lead-firms (Samsung and Apple), coupled however with dynamic and innovative smaller competitors (as Huawei, Oppo).¹¹⁷⁴ The consolidation of lead-firms has in turn resulted in the consolidation for the other companies that supply them with important services, such as EMS and ODM.¹¹⁷⁵

In the segment of distribution and network connectivity, one can also see a trend towards consolidation, particularly on a more national geographical level.¹¹⁷⁶ Examples of this include the acquisition by Three of O2 in Ireland, and that by O2 of E-Plus in Germany, both resulting in the decrease of significant wholesale network operators in those countries.¹¹⁷⁷ Furthermore, there have been transactions involving fixed and mobile operators, including the purchase by Liberty Global of Base in Belgium.¹¹⁷⁸

Data-driven business models feature strongly in some segments of the smartphone value chain. Big Data drives revenue streams connected to advertising through a number of different channels, including engine search, display ads and in-app advertising.¹¹⁷⁹ An interesting example is Google, which offsets any costs of providing free access to Android by means of advertising revenue obtained, for instance, in the Google Play app marketplace.¹¹⁸⁰ A similar approach, although different with regards to the availability of the operating system, is followed by Apple.¹¹⁸¹

Platforms operate as multi-sided markets that combine different smartphone services and engage collect data in order to create “robust user profiles.”¹¹⁸² For instance, the use of online marketplaces to download apps enables the storage of information on the types of apps downloaded, the smartphone, language and so forth.¹¹⁸³ Coordination and integration of the user’s profile is also assisted by provisions of other services, as shown by the interaction of Google’s Gmail, Maps, Drive and Wallet.¹¹⁸⁴

Network operators can also potentially build user profiles, through billing information and data, provided that smartphone transactions are managed directly by network op-

1174 G. Cecere, N. Corrocher & R.T. Battaglia, ‘Innovation and competition in the smartphone industry: Is there a dominant design?’ (2015) 39 Telecommunications Policy 162-75.

1175 J. Lee & G. Gereffi, ‘The co-evolution of concentration in mobile phone global value chains and its impact on social upgrading in developing countries’ (2013) Capturing the Gains Working Paper 25 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2237510>.

1176 A.T. Kearney, ‘The Internet Value Chain’ (GSMA, May 2016) <www.gsma.com/publicpolicy/internet-value-chain-study-economics-internet>.

1177 OECD, ‘Digital Convergence and Beyond’ (2016) OECD Digital Economy Papers No 251 <www.oecd-ilibrary.org/science-and-technology/digital-convergence-and-beyond_5jlwvzzj5wvl-en> .

1178 Ibid.

1179 A.T. Kearney, ‘The Internet Value Chain’ (GSMA, May 2016) <www.gsma.com/publicpolicy/internet-value-chain-study-economics-internet>.

1180 OECD, ‘The App Economy’; B. Pon T. Seppälä, M. Kenney, ‘One Ring to Unite Them All: Convergence, the Smartphone, and the Cloud’ (2015) 15 Journal of Industry, Competition and Trade 21-33.

1181 OECD, ‘The App Economy’.

1182 Pon and others.

1183 Pon and others.

1184 Ibid.

erator rather than other intermediaries.¹¹⁸⁵ Purchasing, billing and other consumer behaviour data is also used by companies in other segments of the smartphone value chain, like of Amazon, where they can integrate user's profiles with their proprietary technological innovations (such as recommendation engine).¹¹⁸⁶

4.6.2. Vertical power: metrics

As we have already explained in Section 4.5.3., there have been many different names to refer to vertical power, perhaps because of disagreements as to how the different dimensions of vertical power may be integrated in competition law assessment, there has been paucity of systematic research on metrics of vertical power. This becomes particularly important in the context of the digital economy, and in particular in order to decide in which instances to trigger competition law intervention for conduct adopted by digital platforms that harms their suppliers, or the members of their ecosystems, and which may also cause consumer harm, or other social costs, as the traditional filter and metrics of market power may only provide part of the picture and does not, as we have explained in Section 4.5.2., cover all instances in which vertical power may not be structural and still cause concern.

We regroup in Table 4.2., the different approaches of vertical power by reference to the theoretical framework that has led to the definition of the specific type of vertical power we examine. One should be cautious to infer any possible anticompetitive effects from such vertical power. We distinguish two steps in the analysis, the first concerns the existence and exercise of some form of vertical power and the development of a filter that may indicate that the issue may be worthy of further competition investigation, with regard to the possible strategies and outcomes, the second consists in assessing the likely outcomes and potential social costs of a specific practice that may result from the restriction of horizontal or vertical competition and/or of a restriction of inter-platform or intra-platform / intra-ecosystem competition.

Table 4.2.: Features of Vertical Power Theories

Power family	Type of power	Source of power	Modality of power exertion	Scope of power sourcing exertion	Existence of standard metrics or modelling
Pro-cess-based	Pro-cess-based	Capacity to apply credible sanctions that affect another agent's gains	Credible sanctions that affect another agent's gains	Vertical and horizontal	Yes

¹¹⁸⁵ *ibid.*

¹¹⁸⁶ *ibid.*

Power family	Type of power	Source of power	Modality of power exertion	Scope of power sourcing exertion	Existence of standard metrics or modelling
Resource dependence	Standard market power	Market structure	Affecting equilibrium quantities or prices in a market	Vertical and horizontal	Yes
Resource dependence	Exclusionary/bottleneck	Supply-side (e.g. an essential facility or input, a technology) and demand-side (e.g. high switching costs, strong positive network effects) conditions creating a bottleneck	Exclusion from the bottleneck resource	Vertical	Yes
Resource dependence	Social exchange theory	Differential dependency between value co-creators	Obtaining a high share of the co-created value through bargaining	Fully vertical	No
Positional	Panopticon	A position in the network of value co-creation that allows to collect valuable information	Strategic use of the information to obtain a higher share of value	Fully vertical	No
Positional	Architectural	Capacity to influence the industry architecture by affecting at least one of its interphases (technological, institutional, social)	Influencing the industry architecture to obtain a higher share of the value created in the industry	Fully vertical	No

Source: B. Carbala & I. Lianos, Vertical Power: Theory and Metrics (forth. CLES Research Paper Series, 2019)

We provide in Annex 3 different metrics for the specific types of vertical power we have examined in Section 4.5.3¹¹⁸⁷.

First, we provide a metric of resource-based vertical power based on differential dependency. These metrics correspond to situations of ‘resourced-based’ differential dependency (i.e. dependency not depending on ownership or market shares, but only on how essential the firm is to the value chain). We have developed the indicator at the firm and at the value chain level, as we consider that both levels are important for the competition assessment, in particular of practices limiting intra-platform and vertical competition.

¹¹⁸⁷ This research forms part of a large common project between Bruno Carbala and Ioannis Lianos on Vertical Power: Concept and Metrics. The thoughts shared in this Report are subject to further research and revision.

Second, we provide a metric of resource-based vertical power based on differential dependency, this time looking at what is often omitted by traditional competition law focusing on product markets, but which has to be incorporated in competition law if one takes financialisation seriously. We consider the ownership structure as a source of dependency within a value chain. As we explore in two different papers, the ownership structure may become a source of intra-value chain dependency¹¹⁸⁸.

Finally, we are working on a metric of panopticon power that engages with the type of concern that may arise out of structural holes and brokerage in the context of a more general “information-intensive” value chain.

4.7. A roadmap for the future

It results from the above that mainstream competition law may not always constitute an adequate tool to deal with the market failures that may digital markets present some of the characteristics of a natural monopoly, in particular the configuration of high fixed costs and low to zero marginal costs, and are often marked by strong network effects that lead to ‘winner takes most’ dynamics. In conjunction with learning by-doing effects and increasing returns to scale, network effects enable digital platforms to easily leverage their power across markets through different exclusionary strategies (e.g. making the technical standards of the platform incompatible with apps developed by competitors or with apps that may commoditise the platform, bundling and other pricing strategies, or non-price discrimination strategies that may raise rivals’ costs). The race to be a dominant firm in a network industry may increase the possibility of a lock-in to a technology which, when decisions taken in every period, looks optimal given past decisions, but is sub-optimal if decisions are delayed and all the decisions are taken at once. Hence, although the specific standard may appear efficient, from a static perspective, it may lack in dynamic efficiency.

Furthermore, in markets with strong network effects, once few firms are in operation, the addition of new competitors, even under free entry, does not change the market structure in any significant way. Although eliminating barriers to entry can encourage inter-platform competition, the resulting competition may not significantly affect market structure. Hence, it is possible that competition authorities may not be able to significantly affect market *structure* by eliminating barriers to entry.

One may face similar difficulties with regard to promoting intra-platform and/or vertical competition. The criticism often addressed to digital platforms¹¹⁸⁹, is that they seem to capture the most important part of the surplus value brought by digital innovation.

1188 See, I. Lianos, A. Velias, D. Katalevsky & G. Ovchinikov, Financialisation of the Global Food Value Chain: Implications for Competition Law, in I. Lianos, D. Davis & A. Ivanov (eds.) *Competition law and the Global Food Value Chain(s)*, (Cambridge University Press, *forthcoming 2019); B. Carbala & I. Lianos, Vertical power: concept and metrics (forth. CLES Research Paper 2019).

1189 See Australian Competition and Consumer Commission, *Digital Platforms Inquiry: Preliminary report* (Commonwealth of Australia 2018); Valerio de Stefano and Antonio, *European legal framework for “digital labour platforms”* (European Union 2018).

However, the current tools of competition law seem to only focus on horizontal competition rather than vertical competition and the distribution of surplus value, thus excluding vertical fairness issues from the competition assessment. The only vertical issue explored is that of the allocation of surplus between consumers and producers, but again in the traditional NPT approach this is perceived from the angle of Kaldor Hicks efficiency and is cause of concern only when it reduces the level and/or quality of output. There are different strategies one may adopt in order to promote intra-platform competition. Non-discrimination or neutrality enhancing policies, or policies against abusive termination from the platform may limit the risks of self-preferencing and foreclosure, while access duties to the parts of the platform that may be considered as 'essential facilities' could protect the ability of the platform's partners to develop competing offers (to those of the platform's subsidiaries) in the other segments of the digital value chain. One may also think of the constitution of institutions with countervailing powers, such as unions of Google users, trade unions representing gig self-employed, such as Netflix artists and Uber drivers, or cartels of media companies, which would have the possibility to collectively bargain with the digital platforms and tame their power. The role of competition law will be in this case not to jeopardise the development of these countervailing powers by exempting horizontal cooperation that has this purpose. Such an option may nevertheless backfire and produce important costs without having any assurance that could be outweighed by any potential benefits.

Hence, if the traditional competition law approach does not work, what are the other available options?

Utilities-style regulation: If we accept that competition may not work in these natural monopoly-like markets, would that be an argument in favour of adopting a pervasive utilities-like regulation? There are different options if the specific digital platform may be considered as a natural monopoly. First, allow the monopoly to maximize profits by producing at the monopoly level. This would however result in a deadweight loss (loss of consumer and producer surplus). Second, it is possible to require the monopoly to set its price where the average cost curve crosses the demand curve. This transfers some surplus from the monopoly to the consumers, expands output, increases social surplus, and reduces deadweight loss. Third, the natural monopoly may be required to set its price where the marginal cost curve crosses the demand curve. This eliminates deadweight loss but revenues no longer cover costs. As a result, tax money must be used to subsidize the production of the good. Finally, the natural monopoly may be obliged to charge a zero price. This also results in a deadweight loss and causes costs to exceed revenues, necessitating subsidies.

Some of the digital platforms may be considered as presenting the characteristics of a natural monopoly to the extent that entry into the industry requires high fixed costs and the industry also faces declining average costs, once the 'entry fee' (fixed costs of production) into the industry is paid. In natural monopolies, the quantity of the good can be produced at the lowest cost by having a single firm. In this context, the monopolist will reduce output, which will lead to deadweight loss. However, digital platforms are not

a natural monopoly like any other, as in contrast to natural monopolies in the utilities' sector, they do not face a declining marginal revenue when they grow their production. The reason for that is the important increasing returns to scale and learning-by-doing effects, in particular learning-by-doing by algorithms, as well as the incentives provided to them by their valuation by financial markets (financialisation) to grow eternally. The important thing to have in mind though here is the type of 'output' produced by some of these digital platforms. For matching platforms, the output can be determined as the number of matches effectuated (e.g. for dating platforms could be the number of dates, for search engines it would be the number of searches), but most of this 'output' is actually related to the facilitation of transactions. This may be considered as 'output' (transactional output) but again it is not clear how this intangible output may be factored in the framework of natural monopoly that has been merely developed in the context of the tangible economy. Platforms are not also producing data but harvesting data. Could data be considered as the output? If this is the case, one may wonder if there would be reason to value such increase in the harvesting of data, if this has negative effects on attention, a scarce resource, or produces externalities to other users (reducing their privacy) through the learning effects produced in terms of the platform being able to make more accurate prediction for users who have only consented to a limited harvesting of their data and for whom data may be largely unavailable. Hence, there may be reasons a policy maker might decide to control the exercise of socially undesirable market power by the natural monopoly.

How utilities-like regulation may work in practice for digital platforms? First, it might take the form of rate regulation. One may calculate the rate that would allow a digital platform to cover its total cost plus a fair rate of return on investments, or can impose a price-cap regulation and ceilings on the increase in prices over the 'money' side of the platform. Such 'rate' regulation may also work in the context of the subsidised side, as platforms may be required to offer positive prices to the users (eg. rewards), or eventually push the digital platforms to adopt a different business model (e.g. move from an advertised-base model to a subscription or royalties-based model)¹¹⁹⁰.

A second option is to choose non-price regulation in order to limit externalities resulting from the incentive of the digital platforms to grow (and thus increase their market valuation) by harvesting even more personal data, or capturing an even higher percentage of the attention of their users. It would be possible in these cases to limit their output, in terms of data harvested or attention-grabbing advertising. As Pigou explained, "(i)n an industry, where there is reason to believe that the free play of self-interest will cause an amount of resources to be invested different from the amount that is required in the best interest of the national dividend, there is a *prima facie* case for public intervention"¹¹⁹¹ One may possibly determine the socially optimal output (in the context of attention markets), for instance the number of ad-slots that should be available on a general

1190 This is possibly one of the implications of the remedies finally agreed in the recent Commission's decision concerning Google Shopping:

1191 A.C. Pigou. *The Economics of Welfare*, (Macmillan & Co., 1932), 331.

search page. However, this type of regulation may also face important difficulties, in particular in order to determine the appropriate rate of return for the digital platform. Of course, there is the theoretical possibility of replacing competition in the market with competition for the market, by enabling the government to auction off a monopoly franchise contract in order to deliver the functionalities provided by digital platforms¹¹⁹². The boundaries of the markets to be auctioned are nevertheless notoriously vague and rapidly evolving in the dynamic context of digitalisation. As Richard Posner also noted a few decades ago, even if governments make the choice of an auction, the incumbent will have a cost advantage and in reality the auction will be a re-negotiation with the incumbent¹¹⁹³. Historical experience teaches us that even if administered contracts (such as franchises) following an auction are the best solution, this often evolves towards full-fledged regulation¹¹⁹⁴.

Soft or light-touch regulation: Another option would be to adopt some light touch regulation of the way platforms organise their relations with the businesses that are part of their ecosystem, eventually by adopting a code of conduct for digital platform, or some more binding form of public regulation. This is the option put forward by the European Commission in the recently adopted *Platform to business regulation*, where a number of duties of non-discrimination and transparency were imposed to most digital platforms, irrespective from the fact they have, or not, market power¹¹⁹⁵. One may also refer to the recent proposals of the Furman Commission to impose to digital platforms with a 'strategic market status' to implement a code of conduct. This would result from a concerted effort of the digital platforms and unidentified "stakeholders", and would complement antitrust enforcement with a clearer and more easily applied set of standards defining the boundaries of undesirable conduct in digital markets¹¹⁹⁶. One may contrast this 'soft law' approach with the more 'hard law' implementation of the abuse of dominance or monopoly provisions in order to ensure that digital platforms do not limit intra-platform or vertical competition. The concept of intra-platform or intra-ecosystem competition refers to competition between the members of the same platform/ecosystem. This can be vertical (if the product markets are complementary) or horizontal as it is possible that a platform includes companies that are competing with each other in the same relevant product markets, or in the same geographic markets. Vertical competition does not refer to competition on relevant product markets but competition for capturing the surplus value.

1192 For a classic discussion, see H. Demsetz, *Why Regulate Utilities?*, (1968) 11 *Journal of Law & Economics* 55.

1193 R. Posner, *Natural Monopoly and its Regulation*, (1969) 21 *Stan. L. Rev.* 548.

1194 See, the discussion in G. L. Priest, *The Origins of Utility Regulation and the "Theories of Regulation" Debate*, (1993) 36 *J.L. & Econ.* 289.

1195 On February 13th, 2019, the European Parliament, the Council of the European Union and the European Commission reached a political deal on a Proposal for an EU Regulation on promoting fairness and transparency for business users of online intermediation services (April 2018), available at <https://ec.europa.eu/digital-single-market/en/news/regulation-promoting-fairness-and-transparency-business-users-online-intermediation-services>.

1196 Furman Report, 57-63. Designing a code of conduct has also been proposed by the Japanese competition authorities, see Japan Fair Trade Commission, *Interim Discussion Paper: Improvement of Trading Environment surrounding Digital Platforms* (December 2018), 6-8.

There are different reasons that may operate as justifications for such an approach. The one put forward by the recent European panel of experts Report is that (at least dominant) digital platforms ‘play a form of regulatory role as they determine the rules according to which their users, including consumers, business users and providers of complementary services, interact, and, when they are dominant, have a responsibility to ensure that competition on their platforms is fair, unbiased, and pro-users’¹¹⁹⁷. Hence, ‘to the extent that the platform performs a regulatory function, it should bear the burden of proving that self-preferencing has no long-run exclusionary effects on product markets’¹¹⁹⁸. As it is noted in the EU report, ‘(d)ominant platforms have “regulatory power” and have a responsibility to use that power in a pro-competitive manner’¹¹⁹⁹.

Property rights on data: One may also argue that we need to create the missing data markets by establishing property rights for data and providing each individual the possibility to transfer and sell this data. The recent GDPR data portability right provides an illustration of the introduction of some property rights’ logic, but of course one may push this further, for instance by treating the use of a search engine and the facilitation (active or passive) of data harvesting as a form of labour contributing to the surplus value generated by the digital value chain that has to be compensated¹²⁰⁰. The State could organise the process of commodification of human consciousness that will enable all citizens to at least benefit from some of the value generated by their data. Such an approach may increase the resources available for the less well-off who can now sell their own data and use them as collateral. However, this will not solve the problem of the structural inequality between those controlling these digital platforms and the rest of the population, in particular if the digital platforms do not face effective competition and consumers are unable to switch easily and port their data or other data-related inputs. Such an approach may receive the blessings of prioritarians who are ready to give priority to the less well-off instead of caring about equal distribution itself, but it would certainly be considered as problematic for egalitarians who put an intrinsic value on equality of distribution.

Natural resources regulation: Some jurisdictions take this propertization logic to the next level. For instance, the recent national e-commerce policy in India, proclaims that the data that is generated in India belongs to Indians as do the derivatives there from, It takes a natural resources view by claiming that

‘(t)he data of a country, therefore, is best thought of a collective resource, a national asset, that the government holds in trust, but rights to which can be permitted. The analogy of a mine of natural resource or spectrum works here” and that “India and its citizens have a sovereign right to their data’¹²⁰¹.

1197 European Panel of Experts Report (2019), 6.

1198 Ibid., 12.

1199 Ibid., 16

1200 For such a suggestion, see I. Arrieta Ibarra, L. Goff, D. Jiménez Hernández, J. Lanier & G. E. Weyl, Should We Treat Data as Labor? Moving Beyond ‘Free’ (December 27, 2017). American Economic Association Papers & Proceedings, Vol. 1, No. 1, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3093683>.

1201 See, Indian Draft National e-Commerce Policy (2019) 14-15.

Using countervailing powers to tame the digital platforms: A light interventionism option, compared to the previous ones, is to accept that the structure of digital markets on which dominant platforms have emerged cannot be transformed to a more competitive structure, in view of the bottlenecks they control, and attempt instead to develop countervailing powers along the digital value chain that may tame the power of digital platforms and attempt to bargain a fairer allocation of the surplus value between the various segments of the digital value chain. This approach may be inspired by that put forward by US economist John Kenneth Galbraith who emphasised the role of countervailing powers in capitalism, being generally indifferent to concentrations of economic power, to the extent that government provides countervailing powers ‘freedom to develop and to determine how it may best do so’¹²⁰². Recent talk about enabling users, self-employed gig workers, or even media companies to collectively bargain with platforms mutually efficient solutions, by enabling them to cooperate without such cooperation falling under the scope of the prohibition of competition law to collusive activity constitutes an example of what is possible. One may also argue that the lack of antitrust enforcement in the US against Big Tech, in particular with regard to monopolisation, and the withdrawal of net neutrality regulation, may be read as advancing a *laissez-faire* programme, or may also be read as a way to engineer the emergence of countervailing powers along the digital value chain. Similar arguments have been made with regard to the development of countervailing powers that would thwart the power of digital platforms through code, such as the ability of consumers to outsource purchasing tasks to algorithms, thereby minimizing the direct role they play in purchasing decisions and overcoming biases ‘to enable more rational and sophisticated choices’¹²⁰³. However, it is unclear if a countervailing powers approach, that would anyway require a great degree of sophistication and prior design, may succeed.

Polycentric competition law: Another option would be to abandon the sole focus on consumer (or social) welfare for one that would aim to also promote *well-being* (consumers or that of the general public).¹²⁰⁴ Such an approach would seek to enhance the cognitive openness of competition law so that it can address the multilevel strategies to restrict competition that are expected to unfold in a complex economy, and to account for the diversity of values or orders of worth in productive friction in society by preserving and promoting spaces of polycentricity (or polyarchy).

Taking a social contract perspective, competition authorities should try to assess the broader social costs of market power. They should consider that the consumer is also a citizen that may value privacy and other public values (e.g. informational self-determination, protection of the environment and sustainability).¹²⁰⁵ By focusing almost exclusively on the price dimension competition law is monocentric and plays with a toy

1202 J. K. Galbraith, *American Capitalism: The Concept of Countervailing Power* (Mifflin Co. 1952): 143.

1203 M. S Gal & N. Elkin-Koren, ‘Algorithmic Consumers’ (2017) 30(2) *Harvard Journal of Law & Technology* 309

1204 We note a significant contrast with the Furman Report, which asserts ‘consumer welfare is the appropriate perspective to motivate competition policy and a completely new approach is not needed’. Furman Report (n 83), 5.

1205 See M. Novak, *The Spirit of Democratic Capitalism* (Simon & Schuster 1982), (differentiating society into three power centres: a political sector, an economic sector, and a moral-cultural sector).

economy that only exists in the economic textbooks. In other words, competition law should move from a monocentric vision focusing on prices and output to a polycentric vision that perceives competition law as an important tool in order to preserve the plurality and autonomy of the various social spheres that may be affected by the rise of digital platforms. Enforcing competition law in a complex economy setting would require the development of a deeper understanding of the social structure of competition and of the various spaces on which competition tournaments may take place.¹²⁰⁶ As it was previously explained, individuals interacting with data comptrollers in the context of an online market transaction are participating in overlapping games in the political sphere with the same corporations. Different methodologies should also be developed to account for this complex reality, such as agent-based modelling and sophisticated computation or the use of simulation techniques to better map the multi-functional strategies of actors in the various competition ecosystems and allow for computation.¹²⁰⁷

But more importantly, polycentric competition law aims to connect the activity of competition authorities with other regulatory fields, the relation between competition and regulation not being conceived as antagonistic but as complementary.¹²⁰⁸ Our brief analysis showed the relative poverty of mainstream competition law to deal with the variety of social costs engendered by the emergence of digital platforms as the dominant players in today's digital economy. It also showed how important it is to make efforts to understand that modern economies and societies are complex systems that may not be dealt with easily with the simple economics of modern competition law.

In our view, one therefore needs to take a **toolkit approach** that would combine different approaches and different areas of law and regulation, competition law playing a primordial role in this new regulatory compass. Actually, as constitutional law provides broader directions for regulatory and administrative action, competition law could play a similar role in terms of promoting the principle of competitive markets among other principles and values that need to be catered for. For instance, a lot of regulation, such as the Open Banking regulations in the UK, result from and integrate competition law values. One may also design property rights and data markets in a way that promotes the values of competitive markets in the economy as an autonomous sphere of justice.

This toolkit approach may rely on different combinations in each jurisdiction, on the basis of the institutional capabilities and the relative efficiency of the various regulatory alternatives, any choice being between imperfect, if perceived in isolation, institutional alternatives.

These considerations lead us to advance a different approach in exploring competition law in the digital era.

1206 R.S. Burt, *Structural Holes* (HUP 1992).

1207 See L. Hamill & N. Gilbert, *Agent-Based Modelling in Economics* (Wiley 2016).

1208 The complementarity between competition law and regulation is also noted in the European Commission's digital report and the Stigler Centre report. Crémer et al (n 203), 52-53; Stigler Report (n 707), 78.

- First, the complexity of the production process highlights the importance of conducting a careful analysis of the power relations *along* the digital value chain, and not only *between* different value chains, the aim being to unveil *value extraction bottlenecks* affecting the distribution of the total surplus value generated by digital innovation. The analysis cannot always be undertaken by the traditional NPT approach, which mainly focuses on horizontal competition (market power) and economic efficiency. The NPT framework ignores ‘vertical competition’, the competition for a higher percentage of the surplus value brought by innovation, and competition from complementary technologies that may challenge the lead position in the value chain of the incumbents (vertical innovation competition). We also need to consider the multiple dimensions and sources of ‘economic power’, horizontal and vertical, in the digital economy (e.g. intermediation power, algorithmic power, architectural power)¹²⁰⁹.
- Second, data and network effects require us to rethink competitive interactions beyond the traditional concept of relevant market. Some have put forward the view that the competition assessment should be done at the level of the platform¹²¹⁰. This may nevertheless challenge the important role of competitive markets as the main social institution to reward productivity. Competition law also needs to engage with the various forms of the competitive struggle to gain not only competitive advantage on product markets but also acquire architectural advantage, which is often more highly valued by financial markets, in view of its potential to sustain abnormal returns for a longer period of time. Competition analysis should engage with the ‘value capture strategies’ put in place by economic actors competing for strategic or architectural advantage in ecosystems¹²¹¹. Abandoning the sole focus on the relevant market also stems from the relatively more limited role of price competition in the digital economy (e.g. ‘free goods’ and multi-sided markets strategies). Hence, we need to develop new mapping tools that represent more accurately horizontal and vertical competitive interactions in the digital economy¹²¹².
- Third, the broader array of interactions, beyond market exchanges, between the different stakeholders, invites us to broaden our understanding of competition law, beyond the monocentric model focusing on price and output that has so far prevailed. In understanding the role of competition law in this new

1209 This derives from the central position of the agent in the network of various agents involved in this socio-technical system and capabilities to set the agenda for the rest of the network. I explore this further in I. Lianos et al, *Superior Bargaining Power in Competition Law: A Theoretical Analysis*, in I. Lianos, A. Ivanov & D. Davis, (eds.) *Global Food Value Chains and Competition Law: Towards Holistic Competition Law?* (forth. CUP, 2019) and in I. Lianos, V. Korah with P. Siciliani, *Competition Law: Analysis, Cases and Materials* (OUP, 2019), Chapter 8.

1210 See, the majority opinion of the Supreme Court in *Ohio v American Express*, 138 S. Ct. 2274 (2018).

1211 D. Teece, *Business models, value capture, and the digital enterprise*, (2017) 6:8 *Journal of Organizational Design*.

1212 See, *Global Food Value Chains and Competition Law – BRICS Draft Report* (January 1, 2018). Available at SSRN: <https://ssrn.com/abstract=3076160> or <http://dx.doi.org/10.2139/ssrn.3076160>; I. Lianos, *Digital Value Chains in Competition Law* (CLES Research Paper 1/2019), available at <https://www.ucl.ac.uk/cles/research-papers>.

environment, some prominent authors have suggested a 'broader reach for competition policy'¹²¹³ that would engage with the full social costs engendered by restriction of competition on different dimensions of well-being. Competition law will have to acquire a polycentric dimension in order to guarantee the effective protection of the societal values that may be affected by actors with economic power¹²¹⁴. However, we crucially lack the operational concepts, tools and metrics to develop this agenda further. Traditional equation-based modelling, although rigorous and insightful, may not cater for these very complex systems. We need to draw on the broader conceptual and methodological framework of 'complex economics'¹²¹⁵ which, we think, provides very interesting conceptual and practical insights in order to operationalise the complex systems that it becomes necessary to consider as competition law moves to tackle digital competition.

1213 J. Stiglitz, *Towards a Broader View of Competition Policy*, in Tembinkosi Bonakele, Eleanor Fox, and Liberty Mncube (eds.), *Competition Policy for the New Era: Insights from the BRICS countries* (OUP, 2016)

1214 I. Lianos, *Polycentric Competition Law*, (2018) *Current Legal Problems* 161.

1215 See, *inter alia*, W. B. Arthur, *Complexity and the Economy* (OUP, 2015); D. S. Wilson & A. Kirman (eds.), *Complexity and Evolution – Towards a New Synthesis for Economics* (MIT Press, 2016).

Chapter 5: The scope of competition law in the digital economy

Ioannis Lianos, Andrew McLean & Azza Raslan with Nicolo Zingales & Matthew J. Strader & the BRICS teams

5.1. Introduction

By defining and protecting property rights, ensuring the enforceability of contracts, allocating liability for harmful activities, imposing duties and burdens through regulation, law plays a central position in the organization of economic and social life, and significantly affects the process of development of capitalism, in view of the various path-dependences that different modes of social, institutional and economic development establish¹²¹⁶. The fact that the legal system did not specifically address the challenges of the digital economy by adapting its existing scope or expanding it accordingly may be explained, either by an active choice in favour of self-regulation through private governance regimes established by digital platforms (see Chapter 3) or by a choice imposed by innovation policy considerations and a new conception of the role of the State in the digital age.

We may distinguish between three main approaches linking the broader field of economic regulation by the State (including competition law) to innovation policy. First, a Schumpeterian approach that would accommodate the vision of a State that actively promotes product, process, organization and market innovation and that conceives its role as the enhancement of structural competitiveness of open economies to competition, what some have named ‘the Schumpeterian workfare state’¹²¹⁷. Even a regime of ‘permissionless innovation’ would require at least a (state) system of ensuring the adjudication and enforcement of property rights. Second, an approach inspired by the precautionary principle, with a pro-active intervention of the State in order to deter possibly harmful activities and to ensure that the principles and values of the Regulatory State will not be jeopardized. Third, an approach that would promote safe spaces for experimentation, for instance through the constitution of sandboxes, the State keeping away from implementing the law to pre-selected partners in a specific context (defined in terms of time, space, field of activity), while using this experience as a source of learn-

1216 As this is put forward by the literature on ‘varieties of capitalism’ and that on ‘legal origins’: See, P. Hall & D. Soskice, *Varieties of Capitalism – The Institutional Foundations of Comparative Advantage* (OUP, 2001); R. La Porta, F. Lopez-de-Silanes & A. Shleifer, *The Economic Consequences of Legal Origins*, (2008) 46(2) *Journal of Economic Literature* 285.

1217 B. Jessop, *Towards a Schumpeterian Workfare State? Preliminary Remarks on Post-Fordist Political Economy*, (1993) 40 *Studies in Political Economy* 7.

ing that would shape normative activity and implementation of the law in the future¹²¹⁸.

All these regulatory strategies of action, or inaction, have of course important implications for the balance achieved between the interests of the various stakeholders and the power of their claims for capturing a more significant part of the surplus value generated by innovation. What is also particularly interesting is that the pre-eminent role of digital platforms in digital capitalism and the subsequent implications this has on the economy, and the distribution of wealth may be explained by a conscious choice to expand the scope of application of a specific area of law, while receding from implementing another, or even adopting policies that would completely exclude the specific field from the legal forms of adjudication of disputes that rely on the monopoly of force from which benefits the State. These are questions that do not only relate to the (personal or material) scope of competition law, but that also concern its interaction with other policies and regulatory systems that have been put in place in each jurisdiction in order to achieve specific goals. It is important to distinguish here between these two separate although connected issues, which are often conflated in the literature by authors raising the risk of 'regulatory leveraging'¹²¹⁹: (i) the proper scope of the policy space of competition law, and once this is defined, (ii) the ability of the institutions enforcing competition law to venture into policy spaces other than that of competition law. Regulatory leveraging may be a concern with regard to the second issue, but it does not provide any guidance for the first one. Indeed, everything depends on what is considered to be the 'normal' scope of the activities of competition authorities and of the competition law policy domain in the specific jurisdiction, an issue that relates to the goals of the specific competition law.

This Chapter will first examine the challenges the digital economy sets to the scope of competition law. Second, we will delve into the way competition law interacts with other legal fields, and the intersection of the various remedial tools. Third, we will discuss the effectiveness of competition law remedies in the fast moving digital economy.

5.2. Adjusting the scope of competition law

The digital economy raises important challenges to the scope of competition law: personal, material and geographical.

5.2.1. The personal scope of competition law in the digital economy

It is important to take into account the various forms anti-competitive conduct may take in the digital economy and the risk that this may go undetected, or those responsible for the anti-competitive conduct not being found liable.

1218 On regulatory sandboxes, see FCA, Regulatory Sandbox (November 2015), available at <http://www.ifashops.com/wp-content/uploads/2015/11/regulatory-sandbox.pdf>

1219 W. E. Kovacic & D. A. Hyman, Regulatory Leveraging: problem or solution?, (2016) 23(5) *George Mason Law Review* 1163.

Hence, the first question one needs to ask with regard to the definition of the material scope of the competition law, is not ‘who’ is an undertaking but ‘what is economic activity’. Such analysis differs depending on the conduct examined and the facts of the specific case. It is possible that the same entity might be found to be an ‘undertaking’ for some activities but not qualified as such for other activities. The digital economy raises important questions as to the nature of the relations between labour and labour platforms and the scope and role of competition law intervention in labour markets in the digital age (see Sections 5.2.1.1., 5.2.1.2., 5.2.1.3.).

It is also crucial to examine the various forms of anticompetitive conduct in the context of blockchain, before answering the question, each time in view of the specific facts, as to whether the activity in question could be qualified as ‘economic’ and, thus, the entity exercising it, an ‘undertaking’ (Section 5.2.1.4.).

5.2.1.1. Labour and Competition Law in the Digital Economy

Another risk is that in view of the dominant role of digital platforms in the world economy, and the ‘winner-take-most’ competition game, where ‘superstar firms’ command growing market shares and become highly profitable, the labour’s share is in significant decline¹²²⁰. The forms of labour in the digital economy have also dramatically changed. However, despite the weak position of labour vis-à-vis the digital platforms, there are fewer possibilities of labour to organise and collectively bargain with digital platforms, as this may fall under the scope of competition law. As we have examined in Chapter 4, promoting the collective bargaining of the different actors (suppliers, labour, users) in the value chain vis-à-vis digital platforms holding ‘bottleneck’ or positional power may offer some remedy to the negative effects of the exercise of such power by the digital platform. The idea is that a two-way bottlenecks could be better (from an efficiency perspective) than one-way bottleneck. We will explore how the institution of collective bargaining may take care of some of the social costs imposed by dominant digital platforms.

5.2.1.1.1. Defining the problem

Competition law usually applies to entities exercising an economic activity in an independent (non-subordinate) way. This may raise difficulties in view of the changing nature of labour relationships in today’s ‘gig’ or ‘collaborative’ economy and the collapse of the traditional binary divide between employment and self-employment. The classic example is how competition law would address the relation between Uber and Uber drivers.

The most important implication of the shift from an ‘old-economy business model’ (OEBM) to ‘new-economy business model’ (NEBM) was in the areas of employment, la-

1220 D. Autor, D. Dorn, L. Lawrence, F. Katz, C. Patterson & J. Van Reenen, ‘Concentrating on the Fall of the Labor Share’, (2017) 107(5) American Economic Review 180.

bour organization, and labour benefits¹²²¹. The dismantling of life-long and secure employment built on mutual loyalty and commitment of employers and employees, which was the hallmark of industrial capitalism, in favor of short-term and insecure employment of a mobile workforce that is always on lookout for new opportunities is a well-documented and well-understood story of labour in the latter part of the 20th Century.¹²²² In broad outline, this was a story of precariousness, the decoupling of benefits (health, retirement, etc.) from employment, and the turning of individuals and households into units of risk management and entrepreneurship.¹²²³ In light of this story, the rise of platforms and the emergence of so-called gig economy in the first part of the 21st century can be considered ‘natural’ and ‘logical’ extensions of the developments of the earlier decades.

Box 1 The Gig Economy in BRICS Countries

Some BRICS NCAs have dealt with issues arising from the gig economy and the sharing economy.

BR In the recent years, CADE dealt with some cases involving companies in the “gig economy”. In 2015, CADE analyzed a merger between Tiger Global Management LLC, an investment fund management company, and GetNinjas, a gig economy platform that intermediates local services, like house cleaning, painting, home renovation, classes and others. It was an indirect acquisition by TGM of a stake in GetNinjas, through the acquisition of shares of GetNinjas Cayman. The transaction was approved without restrictions. In 2017, CADE analyzed a merger involving the online food delivery market, between Rocket Internet SE (Delivery Hero) and Naspers Ventures B.V. (iFood and Spoonrocket). The transaction was approved without restrictions.

RU The Law on Protection of Competition does not include any exemption for any kind of self-employed people (including those of gig economy). In 2016 the FAS Russia approved with conditions the merger of taxi platforms Yandex and Uber, which are the specific examples of the gig economy. While considering the merger the FAS Russia took into account the specific features of merging platforms.

CN Cases related to the gig economy involve mainly the express delivery industry and the online car-hailing industry. In 2017, SAMR unconditionally approved Jiangsu Suning Logistics Co., Ltd. to acquire the equity of Tiantian Express Co., Ltd., which concerned the same city express service market, the provincial express service market and the inter-provincial express service market. From 2018 to 2019, SAMR unconditionally approved cases related to online car-hailing, including the joint venture case between Toyota Motor Corporation and Softbank Co., Ltd., the joint venture case of Geely Technology Group Co., Ltd. and Daimler AG, and the acquisition of Beijing Bao by Shenzhou UCAR Co., Ltd., and the equity case of Wo Automobile Co., Ltd.

Source: BRICS NCAs Questionnaire

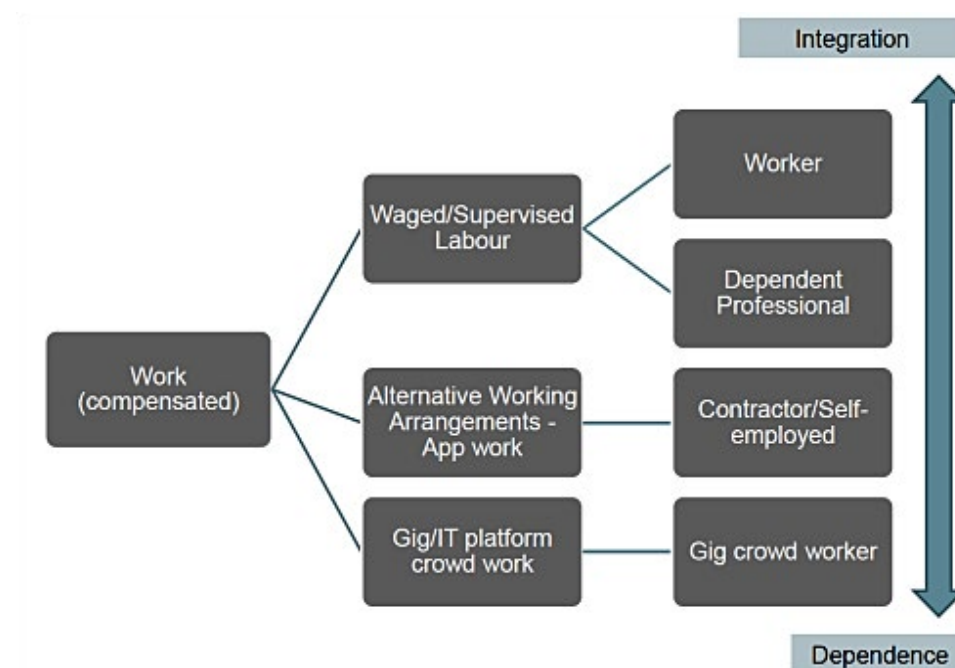
1221 W. Lazonick, *The New Economy Business Model and the Crisis of U.S. Capitalism*, (2009) 4(2) *Capitalism and Society*, Article 4.

1222 L. Boltanski & E. Chiapello. *The new spirit of capitalism* (Verso. 2005); see also H. Ekbja, *Digital Inclusion and Social Exclusion: The Political Economy of Value in a Networked World* (2016) 32(2) *The Information Society*, 165-175.

1223 R. Sennett, *The culture of the new capitalism*, (Yale University Press. 2007).

Looking to the category of ‘work’ (see Figure 5.1), we can identify two separate poles and then a number of situations that lie in the middle.

Figure 5.1: Dissecting the Category of ‘Work’ (compensated)



Source: I. Lianos, N. Countouris & V. De Stefano, *Re-thinking the competition law/labour law interaction: Promoting a fairer labour market*, (2019) *European Labour Law Journal*,

We are inspired here by the classic distinction between ‘hierarchy’, conceived as a centralized pole of economic organization of production regulated by the employment contract and characterized by the hierarchical position of management¹²²⁴, and the ‘market’, considered as a decentralised institution that relies, in order to function, on price signals emitted by consumers/users of labour (as the archetypical market in our case will be labour markets), to which labourers strive to respond. The key concept characterizing hierarchy is the full control of labour to the extent that this is integrated in an existing hierarchical structure. Of course, labour here is compensated though the payment of a wage by the employer. We do not distinguish for the purposes of this study between employers that are corporations and employers that are physical persons. Waged work is not the only category of supervised labour that may be integrated into the hierarchy. It is also possible to think of certain dependent professionals, for instance lawyers acting for a significant part of their time as in-house counsel for corporations, as also integrated into the boundaries of the firm.

While waged work constitutes one pole of ‘work’, the other one is constituted by labour expended in order to manage capital, own or capital borrowed in financial markets. The second pole of ‘work’ relies on the use of capital, the most extreme scenario being that

¹²²⁴ Depending of course on the theory of the firm one may adopt.

labour becomes marginal or ancillary to the use of capital. This may include different forms of entrepreneurship (e.g. a restaurant owner that is at the same time the restaurant chef). In the middle, lie a certain number of alternative working arrangements that associate a worker to a specific task, but without integrating the worker in the hierarchy, as the worker remains in principle free to also provide work for other 'employers', although this formal freedom may be regulated, for instance, by non-competition clauses in the contractual relation. This category includes part-time workers, or gig and app work. This type of work has considerably increased in importance the last three decades, as a result of the transition process from OEPM to NEPM.

A study conducted in the US, for instance, surveyed temporary help agency workers, on-call workers, contract workers, independent contractors, and freelancers, and found that their share in the entire worker-force rose from 10.7% in 2005 to 15.8% in 2015 — a 50% increase in 10 years.¹²²⁵ By comparison, there was hardly any change in this regard between 1995 and 2005. More telling, 95% of the net employment growth in the US economy (2005-2015) occurred in alternative work arrangements, while for standard employment arrangements the growth amounted to only 0.4%. There are predictions that the majority of U.S. workers will be freelancing by 2027, thus leading to a very different structure of the labour market¹²²⁶. Although 44% of freelancers gained more than US\$50000 gross income per year in 2018¹²²⁷, more than half of them work in more than two jobs, with five percent reporting having simultaneously four jobs or projects in order to be able to gain this income¹²²⁸.

The situation is also rapidly evolving in Europe. There were more than 1 million freelancers in the UK in 2017, the most populous occupation for being in the artistic, literary and media sectors¹²²⁹. These reported average earnings of approximately £29000, the medium annual earnings for full-time workers being during the same period £28760.

Of particular interest is the development of alternative work arrangements which are facilitated by digital platforms, which create new digital marketplaces to supply labour for temporary use ('labour value platforms')¹²³⁰. Schmidt provides a comprehensive taxonomy of these work arrangements, identifying two major categories each with three sub-categories, (i) Web-based Cloud work (which comprises freelance marketplaces, microtasking crowd work, and contest-based creative crowd work), and (ii) location based 'Gig' work (accommodation, transportation and delivery services, and household and

1225 L.F. Katz & A.B. Krueger, *The rise and nature of alternative work arrangements in the United States, 1995-2015*, (2018) 72(2) ILR Review 382.

1226 See, E. Pofeldt, *Are We Ready For A Workforce That is 50% Freelance?*, Forbes (October 17, 2017), available at <https://www.forbes.com/sites/elainepofeldt/2017/10/17/are-we-ready-for-a-workforce-that-is-50-freelance/#76afee263f82>.

1227 See, <https://www.statista.com/statistics/915926/gig-economy-workers-annual-income-before-taxes-us/>.

1228 See, <https://www.statista.com/statistics/915809/gig-economy-number-jobs-currently-held-gig-economy-workers/>.

1229 See, <https://www.statista.com/statistics/711419/united-kingdom-freelancing-professionals-type-of-work/>.

1230 V. De Stefano & A. Aloisi, *European legal framework for "digital labour platforms"*, (European Commission, 2018), available at http://publications.jrc.ec.europa.eu/repository/bitstream/JRC112243/jrc112243_legal_framework_digital_labour_platforms_final.pdf.

personal services)¹²³¹. This work may sometimes be categorised under the wide umbrella of Non-Standard and contingent work (self-employed own account workers not hiring other individuals, temporary or fixed term contracts, and part-time work), although the way the work is organized, and the lack of alternatives in view of the dominance of these platforms, may be compared to the relation between employer and employee in traditional and long-term forms of employment¹²³².

An increasing number of people provide services through online platforms such as Uber, Grubhub, Upwok, Handy, Deliveroo or TaskRabbit. The rise of these kinds of 'gig work' is becoming a global trend. It has been reported that of the 150.000 new jobs created in Denmark 2012-2017, 44% were part-time jobs with 20 working hours per week or less, despite its strong unions and social contract between employers and employees.¹²³³ Other studies report similar trends. For instance, a study by JPMorgan-Chase (Farrell et al. 2016) found that 0.9% of adults in the USA participate in the online platform economy — 0.5% on labour platforms of the gig-economy (e.g. Uber, Taskrabbit) and 0.4% on capital platforms, leasing or selling their assets (e.g. Airbnb, eBay). Importantly, these numbers are the result of remarkable growth, which reached the 400% mark in late 2013 and most of 2014 before it slowed down to 102% in mid-2016. However, such growth is counteracted by high turnover rates; around one in six participants is new at any given month, while ca. 50% of participants exit within 12 months.

The 'gig' economy is usually understood to include chiefly two forms of work¹²³⁴: 'crowd-work' and 'work on-demand via apps'. The first term is usually referred to working activities that imply completing a series of tasks through online platforms. Typically, these platforms put in contact an indefinite number of organisations and individuals through the internet, potentially connecting clients and workers on a global basis. IT platforms are used to source work 'from an anonymous group of "bidders", who are referred to as the crowd, the provider and the worker frequently not having direct contact¹²³⁵. "Work on-demand via apps", instead, is a form of work in which the execution of traditional working activities such as transport, cleaning and running errands, but also forms of clerical work, is channelled through apps managed by firms that also intervene in setting minimum quality standards of service and in the selection and management of the

1231 F. Schmidt, *Digital Labour Markets in the Platform Economy: Mapping the Political Challenges of Crowd Work and Gig Work*, (Friedrich Ebert Stiftung, 2017), available at <https://library.fes.de/pdf-files/wiso/13164.pdf>.

1232 C. Codagnone, F. Abadie & F. Biagi, *The Future of Work in the 'Sharing Economy': Market Efficiency and Equitable Opportunities or Unfair Precarisation?*, (Office of the European Union Institute for Prospective Technological Studies JRC Science for Policy Report, 2016).

1233 E.A. Damm, *Stor stigning i stillinger på mindre end 20 timer om ugen*, The Economic Council of the Labour Movement, Copenhagen, DK.2018; See A. Marton, H.R. Ekbia, L.-D. Gruss, *New Division of Labour: Of Humans, Machines and Platforms*. The 34th EGOS Colloquium. 2018.

1234 For a discussion, see V. De Stefano, *The rise of the «just-in-time workforce»: On-demand work, crowdwork and labour protection in the «gig-economy»*, Conditions of Work and Employment Series No. 71, (ILO, Geneva, 2016), available at https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_443267.pdf.

1235 See, D. Schieck & A. Gideon, *Outsmarting the gig-economy through collective bargaining – EU competition law as a barrier to smart cities?*, (2018) 32(2-3) *International Review of Law, Computers and Technology* 275227.

workforce¹²³⁶. For instance, transport platform Uber uses technology to match customers with persons delivering work in the real world, such as offering a ride (cab services), delivering items (courier services), caring for children, the elderly or pets, gardening, or other craft services”¹²³⁷. The second relies on the IT platform (through an app) to source work ‘from an anonymous group of “bidders”, who are referred to as the crowd, hence the name crowd sourcing’, where frequently the provider and the worker will not have direct contact as the process is organised through the IT platform¹²³⁸. These archetypes ‘represent points on continuum’¹²³⁹.

App-work consists in a digital platform matching a user/consumer with a pre-selected, by the platform, professional ‘user’ of the platform, who is already exercising this type of activity, and although in theory independent and self-employed, in reality relies on the platform technology, often through an app, to reach consumers/users at the other side of the platform. This pre-selection process and the fact that inclusion in the platform to be ‘matched’ with a user from the other side requires some form of governance of the platform with specific rules to which the app workers may abide to. Hence, this type of work may appear quite close to a traditional employment relationship, although there is no payment of wages in this occasion. Notwithstanding the non-integration of these workers in the hierarchy, for instance through the existence of a formal employment contract, the fact of the matter is that they also depend for their livelihood on their technological inclusion in the digital platform ecosystem. Often their relation with the platform takes the form of a commercial agency agreement, the genuine agency relations supposing that the agent acts as the long hand (*longus manus*) of the principal. However, courts have been quick to re-qualify these arrangements as functionally equivalent to employment, in view of certain characteristics accentuating this relation of dependence¹²⁴⁰.

Crowd-work may also lead to situations of dependence, if competition is limited because of the dominance of a platform on a specific (labour) market, or because of exclusion

1236 V. De Stefano, The rise of the «just-in-time workforce»: On-demand work, crowdwork and labour protection in the «gig-economy», Conditions of Work and Employment Series No. 71, (ILO, Geneva, 2016), 1.

1237 D. Schieck & A. Gideon, Outsmarting the gig-economy through collective bargaining – EU competition law as a barrier to smart cities?, (2018) 32(2-3) International Review of Law, Computers and Technology 275.

1238 D. Schieck & A. Gideon, Outsmarting the gig-economy through collective bargaining – EU competition law as a barrier to smart cities?, (2018) 32(2-3) International Review of Law, Computers and Technology 275227.

1239 Ibid.

1240 See, for instance, the approach of the UK Employment Tribunal (UKEAT) regarding the employment status of Uber drivers: *Uber B.V. and Others v Mr Y Aslam and Others*: UKEAT/0056/17/DA. The UKEAT rejected the label of agency used in the written contract between Uber and the drivers and qualified them as employees, although the drivers incurred commercial risks as they were responsible for all costs incidental to owning and running the vehicle, and were also able to work for or through other organisations, including direct competitors with Uber operating through digital platforms. The UKEAT arrived to this conclusion by adopting a purposive interpretation, taking into account the relative bargaining power of the parties, the integration of Uber drivers into Uber’s business, in particular as, among other things, they were prevented from building up a business relationship with the end user of the service, they were in practice obliged to accept all trip requests if they wanted to keep their account status, and Uber held a significant market share in London, which left them no other equally effective competitive alternative.

ary strategies adopted by the platform. However, to the extent that the crowd worker is able to work for other platforms and collect an equal or significant part of his revenue from them, dependence becomes less of an issue. Dependence will of course increase the more the crowd-worker depends on work for a specific platform, in which case his situation may be considered as functional equivalent to a full-dependent worker.

The introduction of computing into work environments has profound implications on the nature of the working relation and requires a more functional perspective in envisioning the concept of 'work'. This should integrate the change from EOBM to NEBM, as well as the reality of the technological dependence of labourers to 'matching' platforms. Those involved in alternative work arrangements often find themselves in the role of entrepreneurs, drawing on their own personal assets, with all the attendant risks and rewards to this kind of economic activity¹²⁴¹. Gig workers find themselves in the grip of the so-called platform economy, controlled by machines and managed by algorithms, into the working of which they do not have any access or insight, and with no recourse to legal labour protections.¹²⁴² These changes also affects labour in different ways: low-skilled workers are facing stagnant or declining wages with an increasing prospect of intensified work through computer-coordinated mechanisms, while high-skilled professionals might be cognitively augmented in carrying out their work, and mid-level workers face the risk of job loss through technologies of automation. The net effect of these developments on waged labour is the 'hollowing out' of middle class, as observed in various societies¹²⁴³.

Digitalization has also made possible the emergence of other value-generating activities that may not fit well within the strict boundaries of the concept of 'labour' as this was conceived by the traditional 'labour theory of value' of classical economists during the era of industrial capitalism. These varieties of human activity not only contribute different forms of value that go beyond traditional labour theory of value, they also involve different social roles and different forms of relation to modern technology. We will refer to the concept of 'use' as a separate concept from that of labour. Indeed, the human activity of 'use' cannot only be characterized as productive, to the extent that the production of value involves some act of consumption for own purposes, as opposed to the consumption of an input in order to produce an output that is considered as a

1241 J. Berg, Income security in the on-demand economy: Findings and policy lessons from a survey of crowdworkers. (International Labor Organization, 2016), available at https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_479693.pdf. U. Rani & J. Berg, Digital labour platforms and the future of work: Towards decent work in the online world. ILO, Research Department. 2018; Neff, G. Venture Labor: Work and the Burden of Risk in Innovative Industries. The MIT Press. 2012

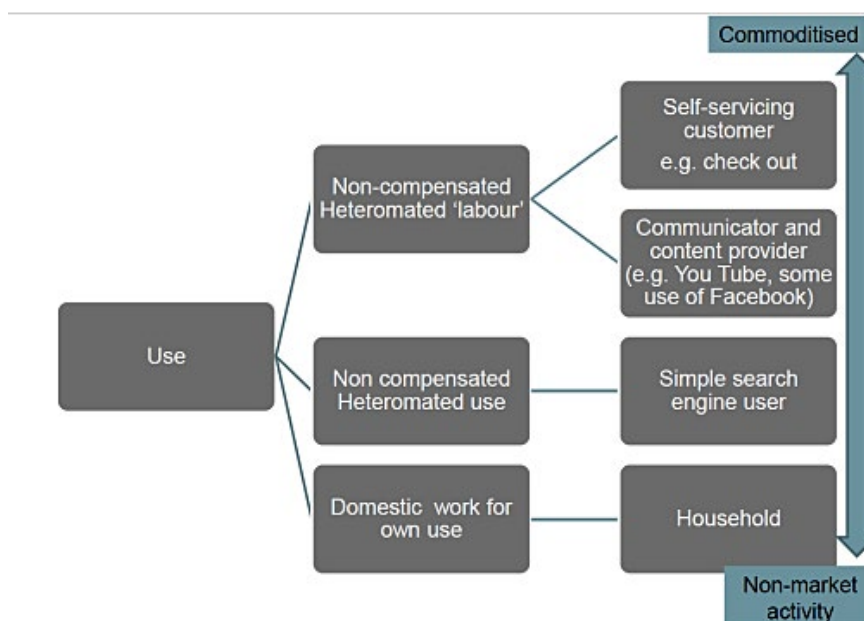
1242 K. Hara, et al. A Data-Driven Analysis of Workers' Earnings on Amazon Mechanical Turk. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI'18) 2018.; V. De Stefano, 'Negotiating the Algorithm': Automation, Artificial Intelligence, and Labor Protection. ILO Employment Policy Department. Working Paper No. 246, 2018; S.F. Deakin & C. Markou, The Law-Technology Cycle and the Future of Work (March 2018). University of Cambridge Faculty of Law Research Paper No. 32/2018.

1243 R. Wike, & B. Stokes, B. (2018). In Advanced and Emerging Economies Alike, Worries About Job Automation. Pew Research Center. <http://www.pewglobal.org/2018/09/13/in-advanced-and-emerging-economies-alike-worries-about-job-automation/>

production activity. The fact that use may generate value questions the idea that value may only be generated by a social relation of production. Similarly, 'use' cannot be confined to an act of consumption, and the two concepts should therefore not be conflated, precisely because of the fact that it generates value.

One may distinguish between different forms of 'use' (see Figure 5.2). The first consists in activities that were previously undertaken by waged workers, labourers with alternative working arrangements, or other types of value-creating labour but which modern computing technology and digitalization has made it possible to heteromate to the users of computing technologies. We will broadly refer to this as 'heteromated labour'.¹²⁴⁴ A classic example is that of the self-serving customer of an airline proceeding to checking in for his flight online, instead of completing this at the airport assisted by an airline representative. This auto-check in process constitutes a moment of heteromation. The process cannot be compared to automation, as human intervention is still required. However, this human activity is that of the customer who auto-checks in. The customer offering this 'labour' remains uncompensated, the value generated being captured by the airline company.

Figure 5.2: Varieties of use



Source: I. Lianos, N. Countouris & V. De Stefano, *Re-thinking the competition law/labour law interaction: Promoting a fairer labour market*, (2019) *European Labour Law Journal*

The situation becomes more complex if the activity is new and there is no possibility to compare with an activity previously exercised by labourers. One may envisage the example of a 'You Tube' user, who has the passion of making videos and then to upload and 'share' them on 'You Tube' for everyone to watch. This activity remains in general uncompensated, although some 'You Tubers' have turned their passion to a career, for instance by using the 'You Tube' Partner Program that enables those posting videos to be paid through views and through advertisements served on their page if they have

¹²⁴⁴ H. Ekbja & B. Nardi, *Heteromation, and Other Stories of Computing and Capitalism* (MIT Press, 2017).

reached a certain number of ‘watch hours’ and number of subscribers that makes them eligible for the programme. The money is made through advertisements, paid either on the basis of how many viewers click on the ads surrounding the video (cost per view) or the number of viewers of the ad for more than 30 seconds (cost per thousands views). If this activity of making videos is compensated, it may constitute entrepreneurship, while if it is uncompensated it can be characterized as heteromated ‘labour’ or ‘heteromated use’. These activities are commoditised, in the sense that, before being heteromated, they were exchanged in a market for a price, in case these were considered as an input bought in the market of services, or compensated by a wage in the marker for labour, had these been performed by a worker hired for this purpose.

Another example is that of a ‘Facebook’ user. In addition to being a social network, Facebook may be considered as the most popular media company in the world, although it does not create any content itself. It simply constitutes a platform enabling Facebook users to create content either by posting original content, in the form of blog posts, photos videos, opinion pieces, or by sharing hyperlinks to media content available in other platforms. The activity of the Facebook user creates value, to the extent that it attracts other users in the platform. However, this activity remains uncompensated. The Facebook user certainly benefits from the content created on the platform, and the fact that interesting content is available constitutes certainly one of the reasons of the use of Facebook at the first place. However, to the extent that the content created by the Facebook user may be visible by all the Facebook network users, and not just by those with whom the user initially selected to share it (e.g. his Facebook friends), one may infer that some value generated from the Facebook’s use is only captured by the platform (not the user). This may constitute an example of ‘heteromated use’, if it cannot qualify as ‘heteromated labour’, to the extent that generating content in media may be considered as a form of labour.

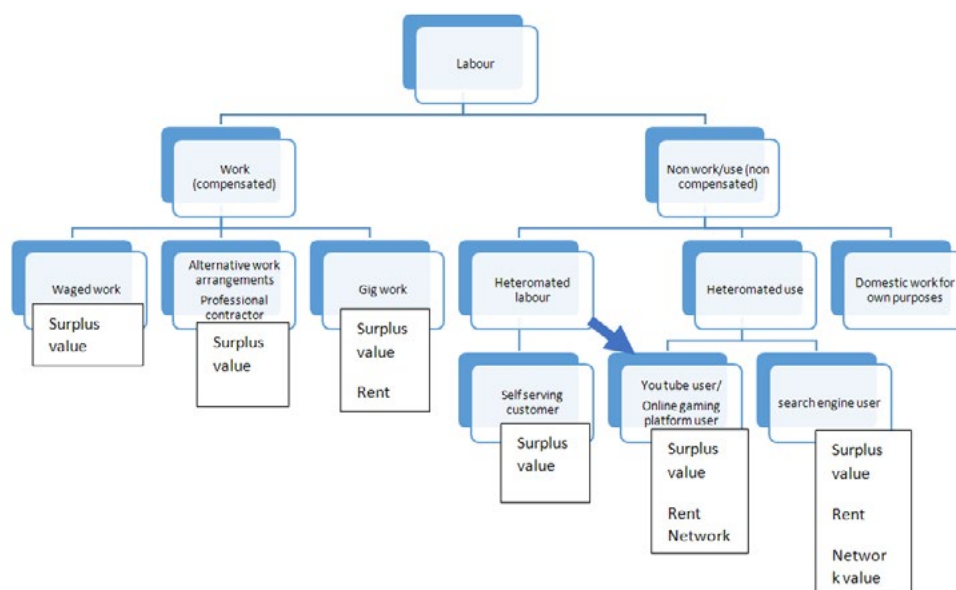
Another example may be that of a gamer in the context of player versus player (PvP) on-line gaming platforms, where players compete against each other, rather than against computer-controlled opponents. The simultaneous use of the platform by different players enables the platform to offer multiple opportunities to the various players to play games and try their skills. It thus directly contributes to the gaming service provided by the platform, as the PvP platform would have no use had there not be a sufficient number of players to play against each other. To the extent that the gaming platform charges for its services, part of this value is captured by the platform, the level of capture depending on the market power of the specific gaming platform (monopoly rents). However, the platform is also able to collect data on how players are using the games in real time, data harvested not only with the purpose to improve their gaming experience, but also in order to be monetized in various ways in data markets, thus constituting another example of ‘heteromated use’. This surplus value is entirely captured by the gaming platform.

Finally, one may refer to the situation of a user of a search engine, such as Google Search. The user is not charged a price for the use of the search engine, but Google

harvests the data of the user, not only with the purpose to improve the user experience but to sell predictions made on the basis of this raw data to advertisers at the other side of the platform. These predictions rely on the aggregation of different sources of data, some harvested by Google on the specific user, groups of other users being classified in the same personality type¹²⁴⁵, or other publicly available data harvested by other platforms to which Google has access or buys access to. Certainly, some of the data harvested by the user is re-employed in order to improve the accuracy of the search engine to the specific user (through more personalization of search) and thus better overall search quality. The user also benefits from the searches done by other users, as the training of search algorithms with more data improves the quality of search, in particular for tail queries (learning effects resulting from the increase of the network of users). However, a significant part of this surplus generated by these network effects is captured by the platform, to the extent that adding more users increases the attractiveness of the Google Search platform for advertisers at the other side of the market (indirect network effects). One may also add the value generated by the ability of the search engine to predict the preferences of users in future transactions by drawing relatively accurate maps of the user's preferences, or by the ability of the platform to manipulate the user's choice. This potential for future abnormal profits is highly priced by financial markets, bringing the valuation of some of these digital platforms at astronomical levels. One may consider that this also constitutes an example of 'heteromated use', to the extent that the simple use of the search engine generates surplus value as well as network value. In the presence of significant network effects and because of the emergence of digital monopolies, the user is not able to capture an equal part of the surplus value or the network surplus to the level of his contribution. First, the user has no information on the real value (and cost) of his data, as these are sold in the advertising side of the platform and these exchanges and their conditions are not visible to his side of the platform, his relation with the platform therefore being characterized by an important informational asymmetry. Second, even if the user had such information, one could not have expected the individual user to be in a position to bargain with the platform a 'fair' share of the surplus generated, in view of the strong bargaining power of the latter resulting from its monopolistic position and the 'take it or leave it' nature of the exchange. Indeed, the search engine user has to comply with the terms and conditions of the search engine or platform for its 'free' use.

Figure 5.3. attempts to present a simplistic scheme of the sources of surplus value for each of the processes we examined.

1245 See, D.C. Funder, *Personality*, (2001) 52 *Annual Review of Psychology* 197.

Figure 5.3: Sources of value in the Digital economy and human activity

Source: I. Lianos, N. Countouris & V. De Stefano, *Re-thinking the competition law/labour law interaction: Promoting a fairer labour market*, (2019) *European Labour Law Journal*

As Ekbia and Nardi demonstrate, depending on the specific technology and context of use, this type of ‘heteromated labour’ or ‘heteromated use’ can take various forms: cognitive, creative, communicative, emotional, and organizing¹²⁴⁶. Value is produced in different forms through heteromated use and labour in daily transactions of people with various technologies — from social media and gaming to search engines and so-called self-service systems in different localities (shopping, banks, airports, etc.). The mechanisms of value extraction vary in each specific case — advertising on social media and search platforms, creative labour in gaming, and data capture and analysis in many of them — but the common denominator among these is the social process of exclusion through inclusion and engagement, which turns these into subtle and hidden mechanisms that need to be unveiled through closer examination.

A different approach than the labour theory of value followed in this Section would have focused on the rise of labour market power. Labour market power has been defined as ‘the ability of employers to set wages below workers’ marginal revenue product’, which denotes the existence of labour exploitation, a concept that has nothing to do with the concept of exploitation employed by the labour theory of value inspiring Marxist approaches, as it only focuses on the exploitation of labour by virtue of the imperfection of the (labour) market¹²⁴⁷. A labour market has been defined as ‘a group of jobs, between which workers can switch with relative ease (for example, computer programmers, law

¹²⁴⁶ H. Ekbia & B. Nardi, *Heteromation, and Other Stories of Computing and Capitalism* (MIT Press, 2017).

¹²⁴⁷ See, J. Robinson, *The Economics of Imperfect Competition* (MacMillan, 1933), 283, noting that ‘a group of workers are being exploited when their wage is less than the marginal physical product that they are producing, valued at the price at which it is being sold’.

yers, or unskilled workers) located within a geographic area usually defined by the commuting distance of workers'.¹²⁴⁸ The concept assumes that there exists a 'spot market' for labour hours, firms employing a number of workers for a specific amount of hours. Under the profit maximization principle, a firm would employ a number of workers whose net marginal product equals the marginal cost of labour, in terms of wages paid. One may conceive the employment relation as a joint venture between owners of capital and workers to the extent that firms combine labor (L) and capital (K) to produce output (Q). The marginal product of a typical worker varies over time. Joan Robinson employed for her definition of exploitation the 'marginal physical productivity of labour', which she defined as 'the increment of output caused by employing an additional unit of labour with a fixed expenditure on other factors'¹²⁴⁹. The employment relationship results in a gap between the workers' marginal product at the firm and their alternative wage offers (in real terms). According to Robinson, exploitation may occur due to the workers' weaker bargaining power than the employers', the 'fundamental cause' of exploitation being 'the lack of perfect elasticity in the supply of labour or in the demand for commodities'¹²⁵⁰. Exploitation may be monopolistic, if this results from imperfections in the commodities market (even if the labour market is competitive), or monopsonistic, if this is due to imperfect elasticity of the supply of labour (even if the product market is perfectly competitive)¹²⁵¹. In situations of monopsonistic exploitation, the wage would equal the supply price of the employee, which would be inferior, because of imperfect competition, to the value of the marginal physical product of labour. Although a minimum wage would remove this kind of exploitation, it would also have as an effect to increase production costs, and therefore lead to a number of negative effects. First, it may increase prices for consumers, if these high costs would be passed on to the consumers in the commodity market, hence workers may lose as consumers more than what can be offset by their gain as wage earners. Second, it may lead to labour factor substitution with a decrease in the level of employment. An important source of labour market power is monopsony and oligopsony resulting from the product and labour markets concentration that has been documented in various industries in recent years¹²⁵². This provides a higher bargaining power to capital and enables firms to 'markdown' wages below the marginal revenue product, redistributing from workers to employers, which has both distributive justice implications, as well as produces deadweight loss (to the extent that it may lead to unemployment)¹²⁵³.

1248 S. Naidu, E.A. Posner & G. Weyl, *Antitrust Remedies for Labor Market Power*, (2019) 132 *Harvard Law Review* 537, 539.

1249 J. Robinson, *The Economics of Imperfect Competition* (MacMillan, 1933), 236.

1250 *Ibid.*, 281.

1251 *Ibid.*

1252 See, the analysis in G. B. Eggertsson, J. A. Robbins & E. Getz Wold, *Kaldor and Piketty's Facts: The Rise of Monopoly Power in the United States* (Nat'l Bureau of Econ. Research, Working Paper No. 24287, 2018), <http://www.nber.org/papers/w24287> G. Grullon, Y. Larkin & R. Michaely, *Are U.S. Industries Becoming More Concentrated?* (Apr. 2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2612047 ; White House CEA, *Benefits of Competition and Indicators of Market Power* (April 2016), available at www.whitehouse.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf.

1253 For a discussion, see S. Naidu, E.A. Posner & G. Weyl, *Antitrust Remedies for Labor Market Power*, (2019) 132 *Harvard Law Review* 537, 558.

5.2.1.1.2. Re-inventing new legal categories?

The development of platform work raises interesting questions, as to the criteria that would enable courts and public authorities to distinguish between workers and self-employed and have raised questions as to the pre-eminence of the employment test as to whether the alleged employer has the right to control the manner and means of accomplishing the result desired in both labour and competition law.

It certainly raises interesting questions as to the respective scope of labour law and competition law and their respective roles in engaging with, and regulating, these new emerging labour market dynamics. Traditionally, competition law focused on safeguarding competition on product markets, labour markets being, with a few exceptions, beyond its remit. This is partly due to the fact that competition law is traditionally perceived as regulating transactions taking place in the context of the market form of organisation, leaving hierarchies, that is relations taking place inside the firm, outside of its scope¹²⁵⁴. In contrast, labour law has traditionally focused on the regulation of the standard employment relationship embedded in the typical contract of subordinate employment, although in recent decades its focus has partly expanded to include some emerging forms of so-called atypical work relations, such as part-time, fixed-term, and temporary work.¹²⁵⁵ In the view of the present authors, this traditional allocation of tasks between employment law and competition law may not be fit for purpose in the era of the New Economy Business Model and the multiplication of alternative forms of labour.

Labour law typically draws a distinction between subordinate ‘employees’ and the autonomous ‘self-employed’. Some Member States (E.g. Spain, the UK, Italy, Germany, Austria...) contemplate intermediate categories of semi-dependent workers, that are usually understood as sub-categories of self-employment.¹²⁵⁶ Other Member States (e.g. France, Belgium, Sweden) do not contemplate intermediate categories, but their notions of ‘worker’ are very broad and include several personal work providers that in other systems would be seen as ‘self-employed’ persons. The concept of self-employment operates as a residual category: if a person does not meet the often very detailed criteria and indicators used to identify who is an ‘employee’ or ‘worker’, labour law will assume, almost by default, that that person is self-employed. Because of this approach, the concept of self-employment encompasses a very broad and heterogeneous range of service providers. It can include both self-employed persons that exclusively sell their

1254 On the distinction between markets, hierarchies and the role of law, see, O Williamson, *The Economic Institutions of Capitalism – Firms, Markets, Relational Contracting*. (New York: Free Press, 1985); O Williamson, *The Mechanisms of Governance* (OUP, 1996).

1255 ILO, *Non-Standard Employment Around the World – Understanding Challenges, Shaping Prospects* (ILO, 2016); G. Davidov and B. Langille (eds.), *The Idea of Labour Law* (OUP, 2011); G. Casale (ed.), *The Employment Relationship – A Comparative Overview* (Hart, ILO, 2011).

1256 A. Perulli, *Economically dependent / quasi-subordinate (parasubordinate) employment: legal, social and economic aspects* (Brussels, 2003); Eurofound, *Exploring self-employment in the European Union* (Publications Office of the European Union, 2017); J. Fudge, ‘A Canadian perspective on the scope of employment standards, labor rights, and social protection: The good, the bad, and the ugly’ (2010) *Comparative Labour Law and Policy Journal*, Vol. 31, No. 2, pp. 253–266. See also the various chapters in the present special issue.

personal labour (often to a single client or to a limited number of clients or customers), but also self-employed persons that offer highly capitalised services, including by recruiting staff in order to offer such services.¹²⁵⁷

Of particular interest is the recent judgment of the Supreme Court of California in the *Dynamex* litigation¹²⁵⁸. Emphasizing the statutory purpose as the touchstone for deciding whether a particular category of workers should be considered employees rather than independent contractors, the California Supreme Court distinguished between three standards in determining the boundary between ‘workers’ and ‘self-employed’ for the purposes of the ‘wage orders’ under the state law in California which provide minimum wage, maximum hour, and working condition requirements for specific industries.

First, there is the common law standard of the hirer’s right to control the details of the work, which as we described above also inspires the approach followed in EU law, which is often supplemented by a number of secondary factors that assist the decision-maker in the implementation of the test¹²⁵⁹. Second, the US courts have developed the ‘the “economic reality” (or “economic realities”) standard’, which treats as employees ‘those workers who, as a matter of economic reality, are *economically dependent* upon the hiring business, rather than realistically being in business for themselves’¹²⁶⁰. Again, the courts make a multi-factor determination focusing, *inter alia*, on ‘the workers’ opportunity for profit or loss and their investment in the business’, ‘the degree of skill and independent initiative required to perform the work’, ‘the permanence or duration of the working relationship’, and ‘the extent to which the work is an integral part of the employer’s business’¹²⁶¹. As the second test requires a significant effort of analysis, some US courts adopted the simpler and clearer ‘ABC standard’¹²⁶². This standard places the burden on the hirer to establish that the worker is an independent contractor by assuming that the worker is an employee, unless the hiring entity cumulatively satisfies the following three factors: (A) ‘that the worker is free from control and direction over performance of the work, both under the contract and in fact’; (B) ‘that the work provided is outside the usual course of the business for which the work is performed’; and (C) ‘that the worker is customarily engaged in an independently established trade, occupation or business’¹²⁶³. According to the California Supreme Court in *Dynamex*, the ABC test provides a less wide-ranging and flexible test than the ‘economic realities’ standard. The Court suggests to start by examining factors B and C first, before moving to

1257 Cf. N. Countouris and V. De Stefano, *New Trade Union Strategies for New Forms of Employment* (ETUC, 2019).

1258 *Dynamex Operations West v. Superior Court of Los Angeles County*, 4 Cal.5th 903 (2018).

1259 These are, in addition to the control of the details of work the following five, thus constituting a ‘six-factor test’: (1) the alleged employee’s opportunity for profit or loss depending on his managerial skill; (2) the alleged employee’s investment in equipment or materials required for his task, or his employment of helpers; (3) whether the service rendered requires a special skill; (4) the degree of permanence of the working relationship; and (5) whether the service rendered is an integral part of the alleged employer’s business’. The Court cites *S. G. Borello & Sons, Inc. v. Department of Industrial Relations* (1989) 48 Cal.3d 341, 354-355.

1260 *Dynamex Operations West v. Superior Court of Los Angeles County*, 4 Cal.5th 903 (2018), fn 20 (emphasis added).

1261 *Ibid.*

1262 *Ibid.*

1263 *Ibid.*

the more evidentially demanding factor A, if need be. For instance, if a worker has not independently decided to engage in an independently established business but instead was simply designated an independent contractor by the unilateral action of the hiring entity, then there is a high risk of misclassification and the factor C may not be satisfied. Furthermore, concerning factor B, the courts should examine if the role in question is comparable to that of employees in the specific course of business of the hiring entity. Factor A is similar to the common law standard previously examined. The judgment of the California Supreme Court has important implications as to the qualification of the activity of platform workers, and therefore the personal scope of labour law protection. It may also provide inspiration as to the possible use of similar factors under EU labour law. By referring to the existence of economic dependence as a relevant factor for the qualification of the distinction between ‘employees’ and ‘self-employed’, it hints to the possibility that a common criteria, based on economic realities, may apply for both labour law and competition law.

In most competition law systems, including the EU law one, the concept of ‘undertaking’ is widely interpreted as ‘an entity engaged in economic activity’¹²⁶⁴. It includes individual persons offering goods or services on a market where they bear financial risk attached to performance of those services¹²⁶⁵. However, an employee cannot be an undertaking as it does not exercise an autonomous economic activity, in the sense of offering goods or services on a market and bearing the financial risk attached to the performance of such activity. So when workers combine with each other and conclude collective agreements with employers to fix a rate, or a price, for the sale of their labour, competition law systems typically see these practices as something quite distinct from the price fixing practices that undertakings may be engaging in.¹²⁶⁶ For instance, since *Becu*¹²⁶⁷, the possible application of Article 101 TFEU to collective agreements concluded between trade unions and associations of employers has led to the development of a fully-fledged exception to the application of EU competition law, for reasons of social policy.

The situation of employees is dealt differently in the EU than in the US. In US law all ‘persons’ are subject to the Sherman Act, unless they benefit from an exemption. Labour benefits from a statutory and a non-statutory exemption. The statutory labour exemption¹²⁶⁸ enables workers to organize to eliminate competition among themselves, and to pursue their legitimate labour interests, so long as they act in their self-interest and do not combine with a non-labour group. Yet, the statutory labour exemption did not immunize the collective bargaining process or collective bargaining agreements themselves from potential antitrust liability, but covered only labour’s organizations unilateral actions. The US courts thus developed the non-statutory basis of the labour exemption in order to remove from antitrust scrutiny restraints in trade that are the product

1264 Case C-41/90, *Höfner and Elser* [1991] ECR I-1979.

1265 Case C-35/96, *Commission v Italy (customs agents)* [1998] ECR I-3851.

1266 See the Opinion of AG Jacobs in Case C-67/96, *Albany International BV* (ECLI:EU:C:1999:28), esp. paras 80-112.

1267 Case C-22/98, *Criminal proceedings against Jean Claude Becu, Annie Verweire, Smeg NV and Adia Interim NV* [1999] ECR I-5665

1268 Clayton Antitrust Act, 15 U.S.C. §§ 12 to 27; Norris-La Guardia Act, 29 U.S.C. §§ 101 to 115

of a collective bargaining agreement between labour and management¹²⁶⁹. These more typically apply to agreements between employees or their unions and employers when the agreements are intimately related to a mandatory subject of bargaining, and do not have 'a potential for restraining competition in the business market in ways that would not follow naturally from elimination of competition over wages and working conditions'¹²⁷⁰. According to the US Supreme Court)¹²⁷¹, '[t]he non statutory exemption has its source in the strong labor policy favoring the association of employees to eliminate competition over wages and working conditions. Union success in organizing workers and standardizing wages ultimately will affect price competition among employers, but the goals of federal labour law never could be achieved if this effect on business competition were held a violation of the antitrust laws. The Court therefore has acknowledged that labour policy requires tolerance for the lessening of business competition based on differences in wages and working conditions'. Courts have even extended this immunity beyond the expiration of a collective bargaining agreement¹²⁷². The non-statutory labour exemption has been frequently applied in the field of professional sports, for instance exempting a labour agreement between the US National Football League (NFL) or the National Basketball Association (NBA) and a national union of student-athletes¹²⁷³.

However, exercising a liberal professions has usually being found to constitute an economic activity falling under the scope of competition law if there is no relation of employment.¹²⁷⁴ In principle, it is not possible to exclude from the scope of Article 101(1) TFEU collective agreements concluded between the members of liberal professions with regard to the fixing of minimum rates or other agreements restricting competition between them, to the extent that self-employed are considered to be undertakings¹²⁷⁵. In its most recent case law, the CJEU has taken a more circum-spect view of the implications for the scope of EU competition law of the distinction between workers and self-employed persons, suggesting that the effective scope of EU competition law with regard to the self-regulation by the social partners of labour relations may be less based on categorical distinctions between workers and self-employed than on their conceptualization as a *continuum* going from situations of complete dependence (in which case the relation will be considered as akin to employ-

1269 See, Local Union No. 189, Amalgamated Meat Cutters & Butcher Workmen of N. Am. v Jewel Tea Co, Inc, 381 US 676, (1965)

1270 Connell Constr. Co v Plumbers & Steamfitters Local Union No 100, 421 US 616, 635 (1975)

1271 Ibid., 622.

1272 See, Brown v NFL, 518 US 231 (1996).

1273 For a discussion, see G Feldman, 'Antitrust versus Labor Law in Professional Sports: Balancing the Scales after Brady v. NFL and Anthony v. NBA' [2012] 45 University of California Davis 1221.

1274 See, for instance, self-employed accountants (Case C-1/12 Ordem dos Técnicos Oficiais de Contas, ECLI:EU:C:2013:127), pharmacists (Case T-23/09 CNOP & CCG v Commission [2010] ECR II-5291), medical doctors (Joined Cases C-180-184/98 Pavel Pavlov and Others v Stichting Pensioenfond Medische Specialisten [2000] ECR I-6451), musicians (Case C-413/13 FNV Kunsten Informatie en Media ECLI:EU:C:2014:2411)

1275 See Joined Cases C-180-184/98 Pavel Pavlov and Others v Stichting Pensioenfond Medische Specialisten [2000] ECR I-6451; Case C-309/99, J. C. J. Wouters, J. W. Savelbergh and Price Waterhouse Belastingadviseurs BV v Algemene Raad van de Nederlandse Orde van Advocaten, intervenier: Raad van de Balies van de Europese Gemeenschap [2002] ECR I-1577.

ment) to a situation of complete independence (in which case the entity in question will be considered as an independent undertaking).

Cases such as *FNV Kunsten*¹²⁷⁶ raised the crucial question of the scope of competition law in view of the emergence of forms of work relationship, such as platform-based work, that put the traditional binary divide between employment and self-employment under strain.¹²⁷⁷ It also raised important questions as to the optimal boundaries between competition law and labour law, and the possible extension of the workers' protection to the 'new jobs', a politically sensitive issue.¹²⁷⁸ In 2006, a collective labour agreement laying down minimum fees for 'employed' and 'self-employed' musicians substituting for members of an orchestra was concluded in the Netherlands. However, it was terminated shortly afterwards, as the Dutch Competition Authority was of the opinion that it was anti-competitive under Article 101 (1) TFEU. The national proceedings initiated by the trade union led to a request for a preliminary ruling to the Court of Justice of the European Union, which surprisingly asserted its jurisdiction despite the lack of any cross-border element. The Court put in place an exception to the application of competition law rules for 'false self-employed'. The CJEU expressly suggested that 'if the service providers, in the name and on behalf of whom the trade union negotiated, are in fact "false self-employed", that is to say, service providers in a situation comparable to that of employees', then Article 101(1) TFEU will not apply to these agreements¹²⁷⁹. The CJEU in *FNV* relied on the following two criteria for defining 'false self-employment':

- *Dependence*: 'the person does not determine independently his or her conduct on the market'¹²⁸⁰, or 'the person is economically dependent on a main customer'¹²⁸¹, with the understanding that the person could be dependent on a main customer even if she derives an income from other customers as long as that additional income is marginal or ancillary. The Court accepts that 'a service provider can lose his status of an independent trader, and hence of an undertaking, if he does not determine independently his own conduct on the market, but is entirely dependent on his principal, because he does not bear any of the financial or commercial risks arising out of the latter's activity and operates as an auxiliary within the principal's undertaking'¹²⁸².

1276 Case C-413/13, *FNV Kunsten Informatie en Media*, ECLI:EU:C:2014:2411.

1277 For a useful discussion, from a labour law but also an economic perspective, see MR Freedland and N Kountouris, *The Legal Construction of Personal Work Relations* (OUP, 2011); N Kountouris, 'The Concept of "Worker" in European Labour Law: Fragmentation, Autonomy and Scope' (2017) 47(2) *Industrial LJ* 192; A Stewart and J Stanford, 'Regulating Work in the Gig Economy: What are the Options?' (2017) 28(3) *Economic and Labour Relations Rev* 420

1278 See, most recently, European Parliament, *The Social Protection of Workers in the Platform Economy: Study for the EMPL Committee* (November 2017), 11, available at [www.europarl.europa.eu/RegData/etudes/STUD/2017/614184/IPOL_STU\(2017\)614184_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2017/614184/IPOL_STU(2017)614184_EN.pdf) (finding that 'the greater the level of financial dependence [of the labourer] on platform work, the lower the access that workers have to social protections').

1279 *Ibid.*, paras 30-31.

1280 *Ibid.*, para. 33.

1281 Opinion of AG Wahl in Case C-413/13, *FNV Kunsten Informatie en Media*, ECLI:EU:C:2014:2215, para 52

1282 Case C-413/13, *FNV Kunsten Informatie en Media*, ECLI:EU:C:2014:2411, para 33.

- *Relationship for specified period of time*: The service should be performed for and 'at direction' of principal, particularly in respect of time, place, and content of work.

We submit that competition authorities should issue guidance documents providing a specific clarification of the term 'worker' for the purposes of the application of competition law as amounting to

'A worker is a person that for a certain period of time is engaged by another to perform mainly personal work or services in return for which he receives remuneration.

Such work or services may be performed under the direct control, indirect control, or decisive influence of the employer or involve a duty to cooperate with employer's direct or indirect instructions"¹²⁸³.

Alternatively, one may not only choose to promote the position of workers, because they are the weaker party in the exchange or because they suffer from a position of structural inequality, but also the broader interest of the public (consumers and entrepreneurs) for innovation. Innovation may be jeopardised if the platform is not able to gain some profits, and thus be appropriately rewarded for its investment. This difficult balancing act may arguably call for the establishment of a new 'hybrid category', situated between the concept of 'worker' and that of 'self-employed'. Those in the hybrid category would only benefit from some aspects of labour protection, or at least be able to collectively bargain with the digital platforms in the presence of asymmetric bargaining power in order to guarantee the right to 'appropriate and proportionate remuneration', as the minimum required in order to reward productivity and maintain incentives¹²⁸⁴. The introduction of a hybrid category would enable firms to retain control of some actions while their workers would control others.

One may consider that the expansion of the category of workers, as suggested in the previous paragraphs, can impose an important cost burden on platforms, leading them to make inefficient choices regarding the degree of control and the revenue shares given to their workers¹²⁸⁵. Assuming a single costly revenue-enhancing action, the question is who, the platform or the worker, should retain control of that activity. This has in turn implications on who should benefit from the larger share of variable revenue in this case¹²⁸⁶. When workers control the costly action, the platform must give them a larger share of variable revenues in order to incentivize them to choose high levels of the action. Hagiu and Wright observe that 'real-world platforms typically let workers keep a large share of the revenues generated, but at the same time provide no fixed payments to the workers by way of salaries or other fixed benefits'¹²⁸⁷. The same authors note that

¹²⁸³ See the proposals in I. Lianos, N. Countouris & V. De Stefano, Re-thinking the competition law/labour law interaction: promoting a fairer labour market, (forth. 2019) European Labour Law Journal.

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'(i)n contrast, traditional firms that tend to take control over revenue-enhancing costly actions prefer to attract workers mostly through fixed salaries and benefits, since that leaves the firm with a greater share of variable revenue, thereby minimizing the distortions in its own choices of these actions'¹²⁸⁸. By emphasizing the transfer of control rights between the platform and the workers, this research allows for situations of two costly actions, where the efficient allocation of control rights would require the platform to control one and the worker to control the other. It also illustrates that the allocation of control rights, and the consequent remuneration arrangements form a *continuum*, with workers paid through fixed salaries and benefits constituting one pole and freelancers compensated through a larger share of variable revenue forming the other pole. Hagiu and Wright suggest a 'hybrid category', 'dependent contractors' with a different regime than employees/workers or genuinely self-employed for situations such as this, in which the platforms will need to grant some but not all control rights to their workers. The platforms would need to provide to hybrid 'dependent contractors' with a fraction of the benefits normally enjoyed by the traditional employees¹²⁸⁹. The authors note that such a hybrid approach may have positive welfare effects, but there is also the risk that it may lead to a lower payoff to the worker, if the platform switches from the traditional employment model to the hybrid model, as it would retain more of the workers' surplus. This approach may nevertheless offer the necessary degree of flexibility for digital platforms to develop their business model, while offering some limited protection to 'dependent contractors'¹²⁹⁰. The choice between the various options on offer will ultimately depend on the trade-off between the incentives of the platform, and that of the contractors, to innovate, as well as the distributional implications for the workers, whose protection is the purpose of both labour law, as well as competition law, to the extent that monopsony labour power may affect the specific labour market and become a source of bargaining asymmetries.

However we consider that the proposals advanced by some authors to introduce a hybrid category of workers to whom to extend some labour protection,¹²⁹¹ including immunity of the relevant collective bargaining from competition law suffers from various problems and the expansion of the workers' category may be a preferable option. A number of authors, including Countouris and De Stefano¹²⁹² already engaged multiple

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1291 A. Hagiu & J. Wright, The status of workers and platforms in the sharing economy, (2019) 28 Journal of Economics Management & Strategy 97, 106; Seth D. Harris and Alan B. Krueger, 'A Proposal for Modernizing Labor Laws for Twenty-First-Century Work: The "Independent Worker"' (2015) The Hamilton Project, Discussion Paper 2015-10 < http://www.hamiltonproject.org/assets/files/modernizing_labor_laws_for_twenty_first_century_work_krueger_harris.pdf>

1292 See Nicola Countouris and Valerio De Stefano, New Trade Union Strategies for New Forms of Employment (ETUC, 2019).; Valerio De Stefano, The rise of the «just-in-time workforce»: On-demand work, crowdwork and labour protection in the «gig-economy», Conditions of Work and Employment Series No. 71, (ILO, Geneva, 2016), 1; Miriam A. Cherry and Antonio Aloisi, 'Dependent Contractors' in the Gig Economy: A Comparative Approach 66 (2017) American Univ. L. Rev. 635. See also, in this special issue, the article of Hitesh Dhorajiwala and Mark Freedland, the article of Elena Gramano and Giovanni Gaudio and the article of Elisabeth Brameshuber.

times with the shortcomings of these proposals. In particular, legal systems where something along the lines of hybrid categories were introduced experienced increased levels of litigation and uncertainty, caused by the fact that parties had to litigate over three rather than two employment statutes. At the same time, many workers who would have been classified as fully-fledged employees, with access to employment protection in its entirety, had a hybrid category not been introduced, were denied basic employment rights without they being substantially different from traditional employees. No positive effects in terms of innovation, productivity or consumer welfare have been proved to be associated with the past introduction of hybrid categories.

5.2.1.2. Promoting Collective Bargaining for labour and beyond (users)

In *Albany*¹²⁹³ the CJEU clearly took the view that it was ‘beyond question that certain restrictions of competition are inherent in collective agreements between organisations representing employers and workers’. However, it was also willing to concede that ‘the social policy objectives pursued by such agreements would be seriously undermined if management and labour were subject to [EU competition rules] when seeking jointly to adopt measures to improve conditions of work and employment’¹²⁹⁴. This concession was premised on various treaty-based textual justifications but also on the understanding that the ‘nature and purpose’ of the agreement was that of ‘improving ... working conditions, namely ...remuneration’¹²⁹⁵. The CJEU found that, first, the collective agreement at issue was concluded in the form of a collective agreement and was the outcome of collective negotiations between organizations representing employers and workers, and second, its purpose, the establishment of a supplementary pension scheme aiming to guarantee a certain level of pension for all workers in the sector ‘contributed directly to improving one of their working conditions, namely their remuneration’,¹²⁹⁶ consequently excluding this agreement from the scope of Article 101(1) TFEU.

Under the current approach followed by the EU courts, an association acting on behalf of self-employed persons is to be regarded as an association of undertakings under Article 101(1) TFEU¹²⁹⁷. It has become increasingly clear that a) when the self-employed seek to bargain collectively the terms and conditions of their services, or b) where collective agreements concluded by trade unions for subordinate workers also contain minimum labour costs provision that also apply to self-employed workers, then the exclusion from competition law will not apply to such self-employed workers as competition authorities or courts see them as ‘undertakings’.

1293 Case C-67/96, *Albany International BV v Stichting Bedrijfspensioenfonds Textielindustrie* [1999] ECR I-5751.

1294 *Ibid.*, para. 59.

1295 *Ibid.*, para. 63.

1296 *Ibid.*, paras 62–63.

1297 Case C-309/99, *JCJ Wouters, JW Savelbergh and Price Waterhouse Belastingadviseurs BV v Algemene Raad van de Nederlandse Orde van Advocaten*, interveners: Raad van de Balies van de Europese Gemeenschap [2002] ECR I-1577. In *Wouters*, the CJEU examined the compatibility with Article 101 TFEU of a regulation adopted by the Netherlands Bar Association prohibiting lawyers practising in the Netherlands from entering into multi-disciplinary partnerships with members of the professional category of accountants.

As for (a), in *Pavlov*, a collective agreement also setting up a pension fund, but concluded by an ‘organisation ... made up solely of self-employed medical specialists’ did not fall under the *Albany* exception and the organisation was seen as acting as an association of ‘undertakings’ and as such subject to competition law¹²⁹⁸. This was so because ‘the Treaty did not contain any provisions ‘encouraging the members of the liberal professions to conclude collective agreements with a view to improving their terms of employment and working conditions’¹²⁹⁹.

As for (b) in *FNV Kunsten* the Court held that ‘in so far as an organisation representing workers carries out negotiations acting in the name, and on behalf, of those self-employed persons who are its members, it does not act as a trade union association and therefore as a social partner, but, in reality, acts as an association of undertakings’¹³⁰⁰, and is therefore also exposed to the full application of EU Competition law rules. An exception to these rules, the Court said in *FNV Kunsten*, is only possible ‘if the service providers, in the name and on behalf of whom the trade union negotiated, are in fact “false self-employed”, that is to say, service providers in a situation comparable to that of employees’¹³⁰¹. This may require the *Albany* exclusion [to] be rephrased through a functional interpretation of the notion of undertaking in EU competition law. This would support an exclusion for all collective bargaining processes aimed at overcoming economic dependency of economically dependent service providers, irrespective from whether they are self-employed or not.

A broad functional approach that would apply case-by-case may nevertheless raise questions as to the limitations to the category of false self-employed, to the extent that situations of economic and technological dependence may occur in a variety of circumstances and could have a number of sources, depending on the idiosyncratic circumstances of each case, some of which it might be quite difficult for competition law enforcers to evaluate. Hence, a different approach would be not to proceed with a case-by-case multi-factor analysis but with a categorisation approach that would classify certain types of activity as more conducive to be considered as leading to a false self-employed status and specific criteria that if satisfied would establish a rebuttable presumption that the collective agreement was concluded by false self-employed. The latter approach was followed by the Irish legislator in the recent amendment of the Competition Act 2002, which provides that Section 4 of the Competition Act (which prohibits anti-competitive agreements, decisions and concerted practices, similarly to Article 101 TFEU) shall not apply to collective bargaining in respect of a ‘relevant category of self-employed worker’.

More specifically, the Act provides a specific exemption for three named categories of self-employed workers: voiceover actors; session musicians; and freelance journalists. These workers have the right to bargain collectively with employers in relation to working conditions and terms of employment, including pay rates. The Irish Competition Act distinguishes between two relevant categories of self-employed workers that may be

1298 Case C-180/98, *Pavel Pavlov and Others v Stichting Pensioenfonds Medische Specialisten*, ECLI:EU:C:2000:428, para. 72.

1299 *Ibid.*, para. 69.

1300 Case C-413/13, *FNV Kunsten Informatie en Media v Staat der Nederlanden*, ECLI:EU:C:2014:2411, para. 28.

1301 *Ibid.*, para. 31.

able to enter into collective bargaining agreements with employers:

'A *false self-employed worker*' is defined as an individual who

- (a) performs for a person ('other person'), under a contract (whether express or implied and if express, whether orally or in writing), the same activity or service as an employee of the other person,
- (b) has a relationship of subordination in relation to the other person for the duration of the contractual relationship,
- (c) is required to follow the instructions of the other person regarding the time, place and content of his or her work,
- (d) does not share in the other person's commercial risk,
- (e) has no independence as regards the determination of the time schedule, place and manner of performing the tasks assigned to him or her, and
- (f) for the duration of the contractual relationship, forms an integral part of the other person's undertaking

A *fully dependent self-employed worker* is defined as an individual

- (a) who performs services for another person (whether or not the person for whom the service is being performed is also an employer of employees) under a contract (whether express or implied, and if express, whether orally or in writing), and
- (b) whose main income in respect of the performance of such services under contract is derived from not more than 2 persons

The Irish Competition Act puts in place a procedure to apply for the benefit of the exception. Trade unions may apply to the Minister for Business, Enterprise and Innovation to permit groups of self-employed workers falling within these definitions to act collectively. As it is indicated in the amended Competition Act, the onus is on the Trade Union making the application to show that the self-employed workers they represent fall within the above definitions, and to also show that providing the exception (i) '(w)ill have no or minimal economic effect on the market in which the class of self-employed worker concerned operates,, (ii) will not lead to or result in significant costs to the State, and (iii) will not otherwise contravene the requirements of this Act or any other enactment or rule of law (including the law in relation to the European Union) relating to the prohibition on the prevention, restriction or distortion of competition in trade in any goods or services'.

Similar approaches to promote collective bargaining in the context of the digital economy are taking place regarding other segments of the value chain, such as producers of content benefitting from a copyright. One may first refer to the collecting society model, put in place for the collective management of copyright rights by authors and other creatives, which benefitted from a *de facto* or statutory monopoly in each Member State

and whose activities were regulated under domestic legislation and national regulatory measures that widely differed in their approach, at least until the implementation of the 2014 Collective Rights Management Directive¹³⁰². Collecting societies were organised in some Member States more than in others, according to the principle of solidarity, as they required all right holders to pay the same fee for the administration of their rights and relied on cross-subsidisation of the less successful artist by the most successful ones, for instance through the organisation of hardship funds that represented for some collecting societies a substantial amount of transfers for social purposes¹³⁰³. The collecting society model has nevertheless been subject to strict competition law scrutiny and was gradually transformed with the increasing emphasis put, in particular since the Commission's recommendation 2005/737/EC in 2005, on promoting cross-border competition between collecting societies, thus progressively breaking the monopoly positions they benefitted from¹³⁰⁴. The agreements concluded by collecting societies have been since assessed under Article 101 TFEU, in recent years, for several dimensions of their activity¹³⁰⁵.

The recent EU Copyright Directive also promotes collective bargaining as a way to deal with the excessive bargaining power of digital platforms¹³⁰⁶. Article 18 of EU Copyright Directive creates a right to 'appropriate and proportionate remuneration' for exploitation of creative works. According to this provision, in the implementation in national law of this principle, 'Member States shall be free to use different mechanisms and take into

1302 Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market, [2014] OJ L 84/72. The Directive sets out the standards that EU Collective Management Organisations (CMOs) which choose to engage in multi-territorial licensing of online musical rights must meet.

1303 See, the discussion in S. Schroff & J. Street, *The politics of the Digital Single Market: culture vs. competition vs. copyright*, (2018) 21(10) *Information, Communication & Society* 1305, 1317, detailing that in 2011, the German GEMA distributed 5.9% of its distributable income for social purposes, including pensions, hardship funds and promotion, the French SACEM 7% and the Spanish SGAE 9.6%.

1304 Commission Recommendation of 18 May 2005 on collective cross-border management of copyright and related rights for legitimate online music services, [2005] OJ L 276/54.

1305 See, for instance, representation agreements in which a collecting society appoints another society to administer rights on its behalf in a foreign territory, which were scrutinised in the CISAC decision because of territorial restrictions, to the extent that each society can issue licenses only for its own territory and users could only obtain a licence from their local collecting society, as the granted licence was limited to the domestic territory of the collecting society: see European Commission, Case COMP/C2/38.698 – CISAC (2008), available at http://ec.europa.eu/competition/antitrust/cases/dec_docs/38698/38698_4567_1.pdf. However, the EU General Court annulled the Commission's decision, finding that the EU Commission had not prove that the European societies engaged in a concerted practice aimed at restricting competition when they implemented identical territorial restrictions in their reciprocals, as it had no evidence for coordination between societies of the territorial scope of their mandates (i.e. no emails, letters or minutes of meetings). The Commission had also not convincingly rebut CISAC's argument that the existence of similar territorial restrictions (the 'parallel behavior') was not the result of coordination, but had other good reasons for it, such as the fact that protection and enforcement of rights require local presence and that it cannot be assumed that incentives to monitor and enforce rights continue to exist where there is competition between societies. See, Case T-442/08 CISAC v. European Commission, ECLI:EU:T:2013:188.

1306 Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, [2019] OJ L130/92.

account the principle of contractual freedom and a fair balance of rights and interests'. Recital 73 of the Copyright Directive states that Member States should be free to implement the principle of appropriate and proportionate remuneration through different existing or newly introduced mechanisms, which could include collective bargaining and other mechanisms, provided that such mechanisms are in conformity with applicable EU law.

Similar mechanisms promoting collective bargaining may also apply with regard to the users of digital platforms, which as explained in a previous Section, contribute to the surplus value generated by the platform, without necessarily being adequately compensated for this contribution. Some authors have suggested to treat the use of a search engine and the facilitation (active or passive) of data harvesting as a form of labour contributing to the surplus value generated by the digital value chain that has to be compensated, also recommending that the users may be organised so as to collectively bargain with the dominant digital platforms in equality of arms¹³⁰⁷. Such collective bargaining would not fall under the scope of competition law if it concerns final consumers, which cannot be considered as 'undertakings', but competition law may apply if the users are intermediary consumers competing in some product market.

5.2.1.3. Designing competition law for the digital labour market

A further option is to re-design the tools of competition law so as to intervene more effectively against labour market power in digital markets. The separate and antagonistic spheres approach followed so far with regard to the interaction between competition law and labour law, led to the conceptualisation of these two areas of law in isolation to each other, competition law applying merely to 'undertakings', while labour law protecting 'workers', with the interplay between the two being conceived negatively as merely ensuring that the aims followed by one will not be jeopardised by the application of the other. This approach may explain why issues of the respective scope of competition law and labour law became the central theme of this interaction, with an attempt to ensure that the application of competition law will not limit the ability of trade unions to collectively bargain with employers and protect the rights of workers.

It is nevertheless possible to adopt a more pro-active agenda in envisioning the relation of competition law and labour, by putting forward the enforcement of competition law, rather than, or in conjunction with, the establishment of exceptions to the enforcement of competition law in order to preserve the possibilities of collective bargaining, in order to deal with the market failures affecting the optimal performance of labour markets and leading to the exploitation of workers, in particular tackle labour market power.

Labour market power has been defined as 'the ability of employers to set wages below workers' marginal revenue product', which denotes the existence of labour exploitation, a concept that has nothing to do with the concept of exploitation employed by the la-

1307 For such a suggestion, see I. Arrieta Ibarra, L. Goff, D. Jiménez Hernández, J. Lanier & G. E. Weyl, Should We Treat Data as Labor? Moving Beyond 'Free' (December 27, 2017). American Economic Association Papers & Proceedings, Vol. 1, No. 1, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3093683>.

bour theory of value inspiring Marxist approaches, as it only focuses on the exploitation of labour by virtue of the imperfection of the (labour) market¹³⁰⁸. A labour market has been defined as ‘a group of jobs, between which workers can switch with relative ease (for example, computer programmers, lawyers, or unskilled workers) located within a geographic area usually defined by the commuting distance of workers’.¹³⁰⁹ The concept assumes that there exists a ‘spot market’ for labour hours, firms employing a number of workers for a specific amount of hours. Under the profit maximization principle, a firm would employ a number of workers whose net marginal product equals the marginal cost of labour, in terms of wages paid. One may conceive the employment relation as a joint venture between owners of capital and workers to the extent that firms combine labour (L) and capital (K) to produce output (Q). The marginal product of a typical worker varies over time. Joan Robinson employed for her definition of exploitation the ‘marginal physical productivity of labour’, which she defined as ‘the increment of output caused by employing an additional unit of labour with a fixed expenditure on other factors’¹³¹⁰. The employment relationship results in a gap between the workers’ marginal product at the firm and their alternative wage offers (in real terms). According to Robinson, exploitation may occur due to the workers’ weaker bargaining power than the employers’, the ‘fundamental cause’ of exploitation being ‘the lack of perfect elasticity in the supply of labour or in the demand for commodities’¹³¹¹. Exploitation may be monopolistic, if this results from imperfections in the commodities market (even if the labour market is competitive), or monopsonistic, if this is due to imperfect elasticity of the supply of labour (even if the product market is perfectly competitive)¹³¹². In situations of monopsonistic exploitation, the wage would equal the supply price of the employee, which would be inferior, because of imperfect competition, to the value of the marginal physical product of labour. Although a minimum wage would remove this kind of exploitation as well as contribute other tangible economic benefits,¹³¹³ it would also have as an effect to increase production costs, and may lead to a number of negative effects. First, it may increase prices for consumers, if these high costs would be passed on to the consumers in the commodity market, hence workers may lose as consumers more than what can be offset by their gain as wage earners. Second, it may lead to labour factor substitution with a decrease in the level of employment.

As it is succinctly summarised by Marinescu and Hovenkamp the ‘key message from economic theory is that as one moves away from the competitive equilibrium towards a situation of monopsony in the (labour) market, wages and production both generally tend to decrease’¹³¹⁴.

1308 See, J. Robinson, *The Economics of Imperfect Competition* (MacMillan, 1933), 283, noting that ‘a group of workers are being exploited when their wage is less than the marginal physical product that they are producing, valued at the price at which it is being sold’.

1309 S. Naidu, E.A. Posner & G. Weyl, *Antitrust Remedies for Labor Market Power*, (2019) 132 *Harvard Law Review* 537, 539.

1310 J. Robinson, *The Economics of Imperfect Competition* (MacMillan, 1933), 236.

1311 *Ibid.*, 281.

1312 *Ibid.*

1313 S. Deakin and F. Wilkinson, ‘The Law and Economics of the Minimum Wage’ (1992), *Journal of Law and Society*, 379.

1314 I. Marinescu & H.J. Hovenkamp, *Anticompetitive Mergers in Labor Markets*, (2018). Faculty Scholarship at Penn Law.

Labour market power may have different sources. First, with the rise of economic concentration, it is highly likely that a few firms would operate in a given labour market, that is in a given labour market only one or few employers will be able to hire from the available pool of workers¹³¹⁵, may hold monopsony power. This provides them the power to reduce wages below what the workers would have been paid had the labour market be competitive. The monopsonist may thus enjoy a higher monopsony surplus, reducing by the same the surplus left to labour. This is not just a theoretical possibility as there has been recent empirical research documenting the rise of labour market concentration in the US¹³¹⁶. The result of labour monopsony or more generally labour market power is that the workers are paid below their marginal revenue product. As noted by the latest OECD Outlook 2019 publication, '[w]hile most of this evidence typically refers to employees, there are some studies quantifying the extent to which independent contractors, including platform workers, may be exposed to monopsony power'.¹³¹⁷

Economic concentration in industries or product markets does not always lead to monopsony or oligopsony and labour market power. There are a number of market characteristics to take into account requiring some elaborate analysis of the interplay of supply (of labour) and demand in the specific market. One may use the hypothetical monopolist test (or Small Significant and Non transitory Increase in Price Test or SS-NIP) which is adopted by the European Commission's Notice on Market Definition for product markets¹³¹⁸. This typically aims to measure cross-price elasticity between two products through a speculative experiment postulating a hypothetical small but lasting change in relative prices [5-10%] and evaluating the likely reactions of customers to that increase. The important parameter that such a test enables us to observe is the

1965. https://scholarship.law.upenn.edu/faculty_scholarship/1965 11.

1315 E. A. Posner, G. Weyl & S. Naidu, *Antitrust Remedies for Labor Market Power*, (2018) 132 *Harvard Law Review* 536, 539.

1316 See, J. Azar, I. Marinescu & M. Steinbaum, *Labour Market Concentration*, IZA Institute of Labour Economics (December 2017), available at <https://www.econstor.eu/bitstream/10419/177058/1/dp11254.pdf> (documenting labour market concentration for over 8,000 geographic-occupational labour markets in the US and finding that the average market is highly concentrated, this concentration being associated with a 17% decline in posted wages, therefore suggesting that concentration increases labour market power). These results were supplemented by a subsequent study exploring estimates of labour market concentration to cover almost all online job postings in the United States for the year 2016 compiling an HHI (Herfindahl-Hirschman index) for each commuting zone by 6-digit SOC occupation: J. Azar, I. Marinescu, M. Steinbaum, B. Taska, *Concentration in US Labor Markets: Evidence from Online Vacancy Data* (August 10, 2018). Available at SSRN: <https://ssrn.com/abstract=3133344> (finding that the average labour market has an HHI of 4,378, or the equivalent of 2.3 recruiting employers and that 60% of labor markets are highly concentrated (above 2,500 HHI). The HHI is a concept developed by economists and used by many competition authorities as a screen to assess likely market power of two or more merging firms. It is derived by adding the square of the market share of every firm in the market. This emphasises the importance for competition by the larger firms.

1317 OECD, *Employment Outlook 2019*, (Paris, 2019), p.154, referring in particular to the studies by Dube et al. 'Monopsony in Online Labor Markets', *American Economic Review: Insights* (forthcoming) providing evidence that workers on Amazon Mechanical Turk can have a residual labour supply elasticity as low as 0.1, while Chevalier et al. 'The Value of Flexible Work: Evidence from Uber Drivers', *Journal of Political Economy* (forthcoming) find values comprised between 1 and 2 for Uber drivers.

1318 Commission Notice on the definition of relevant market for the purposes of Community competition law, [1997] OJ C 372/5.

price elasticity of demand facing the hypothetical monopolist: if the demand is elastic, then it would not make sense for this monopolist to implement profitably the SSNIP and therefore the relevant market needs to be broadened; if the demand elasticity is low, then it would be profitable for the monopolist to implement the SSNIP, and therefore the relevant market should be narrowed down. In our context, the test should be adjusted for gauging monopsony labour power. Hence, it will explore the hypothetical monopsonist's ability to impose a 'Small Significant Non-transitory Reduction in Wages' (SSNRW test) looking to the elasticity of labour supply in the hypothetical market¹³¹⁹. The geographical dimension of these labour markets may be determined according to some evidence on work commuting. For instance, Marinescu and Hovenkamp suggest the use as a starting point in the analysis for geographic markets of 'Observed Commuting Zones (CZs)', which are 'geographic area definitions comprising clusters of counties that were developed by the United States Department of Agriculture (USDA) based on data from the 2000 Census on commuting patterns across counties to capture local economies and local labour markets'¹³²⁰. With regard to product markets, they suggest the use as a starting point of the analysis of six digits Standard Occupational Classification (SOC) codes and a job title (e.g. senior as opposed to junior accountant), which may define markets by occupational category¹³²¹. The purpose of this test and of the market definition exercise in general is to determine, indirectly, the existence of labour market power. The competition authority may compile market shares in these labour markets and determine if a specific undertaking or undertakings hold a dominant position or more generally market power.

However, in the context of labour markets, concentration is not always a necessary condition for the finding of labour market power. This is because there may be different sources of labour market power, such as product differentiation and search frictions¹³²². These may be particularly strong in some cases, for instance because of the absence of other economic activities in the specific region and the dominant presence of one employer, so that even an individual firm may be considered as an antitrust labour market¹³²³. The difficulties of people to move in different places to search for work because of personal attachments (family, friends or local community), language and cultural factors, economic factors (such as a mortgaged home) also indicate that it is not possible to purely and simply transpose to labour markets the assumptions driving the assessment of market power in product markets (and in particular the baseline assumption of perfect competition). Hence, it is important to stay open to the idea that there may exist labour market power even in non-concentrated labour markets. The difficulty in

1319 For a detailed analysis, see M. Steinbaum, *Antitrust, the Gig Economy, and Labor Market Power* (June 12, 2019). Law and Contemporary Problems, 2019, available at SSRN: <https://ssrn.com/abstract=3347949>; E. A. Posner, G. Weyl & S. Naidu, *Antitrust Remedies for Labor Market Power*, (2018) 132 Harvard Law Review 536, 574-575.

1320 I. Marinescu & H.J. Hovenkamp, *Anticompetitive Mergers in Labor Markets*, (2018). Faculty Scholarship at Penn Law. 1965. https://scholarship.law.upenn.edu/faculty_scholarship/1965 18.

1321 *Ibid.*, 18.

1322 E. A. Posner, G. Weyl & S. Naidu, *Antitrust Remedies for Labor Market Power*, (2018) 132 Harvard Law Review 536, 541.

1323 M. Steinbaum, *Evidence and Analysis of Monopsony Power, Including but not limited to, in labour markets*, Roosevelt Institute (August 2018), available at <file://ad.ucl.ac.uk/homea/uctlio/ Documents/ftc-2018-0054-d-0006-151013.pdf>.

this case would be for competition law to develop adequate metrics so as not for these instances of labour market power to escape the scrutiny of competition authorities.

A possible option is to rely on a multi-factor analysis that would take into account different sources of evidence of labour market power/monopsony. First, employers with labour market power are able to impose to workers adverse conditions on employment. These can take the form of non-compete clauses which go beyond what is necessary to protect the transfer of know-how to the worker, other disadvantageous terms (such as longer working hours, mandatory arbitration and class action waivers or broad non-disclosure agreements) without compensation, deferred compensation agreements or any other working conditions that depart from the norm in the specific industry or more broadly. Although the analysis may in some instances require to first look to 'abnormal' conduct or performance before addressing the issue of the market structure, thus inverting the traditional approach in determining the existence of market power, it is not unprecedented¹³²⁴. Second, Steinbaum puts forward as evidence of labour market power 'the prevalence of earnings inequality between similar workers who work at different firms in the same (labour) market' to the extent that in 'a competitive labor market, the existence of outside job offers at the market wage makes the (labour) supply curve infinitely elastic to individual firms' and '(a)ny worker paid less than they are worth would leave for a better offer'¹³²⁵. Another source of direct evidence of labour market power is when 'quits do not correspond very much to wage changes', this evidence being easier to comply in the context of digital labour platforms (such as Amazon Turk) where tasks and workers tend to be homogeneous and therefore easily comparable¹³²⁶.

Hence, it has been suggested that policy-makers develop a broader list of criteria to take into account in defining the existence of labour market power. These recommendations include the following:

- a (rebuttable) presumption that 'a market share of over 50% of employment (or alternatively, of posted job vacancies) in a well-defined antitrust (labour) market' may constitute evidence of market power';
- '(t)he ability to lower wages below what would be charged in a competitive market';

1324 It is indeed possible that economic methods may be used to assess market power directly by focusing on changes in market power, examining for instance a historical counterfactual without the challenged practices in order to decide if a conduct has increased market power (a retrospective analysis in the situation of an agreement or abusive conduct), or providing an analysis of the change in incentives (a prospective analysis for instance regarding mergers) in order to examine if the conduct is likely to increase market power. Profitability analysis or the fact that there has been permanent price discrimination or price stability can also be used as factors, among others, enabling competition authorities to infer the existence of market power. For a discussion, see JB Baker and T Bresnahan, 'Economic Evidence in Antitrust: Defining Markets and Measuring Market Power', in Paolo Buccirossi (ed.) *Handbook of Antitrust Economics* (MIT Press, 2008), 1.

1325 M. Steinbaum, *Evidence and Analysis of Monopsony Power, Including but not limited to, in labour markets*, Roosevelt Institute (August 2018), available at <file:///ad.ucl.ac.uk/homea/uctlio/ Documents/ftc-2018-0054-d-0006-151013.pdf>. 2.

1326 Ibid.

- '(t)he ability to wage-discriminate, that is, to pay similar workers working in the same market significantly different wages';
- '(t)he ability to impose disadvantageous nonwage contractual terms on workers without compensation'¹³²⁷.

One may also argue for the analysis of the superior bargaining power of some employers, in view for instance of significant investments made by the workers for their education and training for the specific job, which make it quite difficult for them to switch if these costs are non-recoverable in their new job or occupation. In some economic sectors (for instance the fashion industry) working for a specific undertaking may also provide an important quality certification to the worker in terms of status and prestige in the profession, which it would be difficult to get elsewhere, thus further limiting the available options of employment to workers and their incentive to switch and by the same providing labour market power to the specific employer. Although situations of economic and technological dependence may not provide any interesting insights as to the existence of labour market power for workers in employment contracts and thus integrated to the undertaking, they may be significant factors to take into account when considering conduct involving gig workers or self-employed that may be qualified as separate undertakings under EU competition law.

Developing new concepts in order to gauge labour market power is not the only reform to undertake. It is also crucial to reflect on specific antitrust theories of harm and metrics that would fit the goal of protecting labour from the negative effects of monopsony. Such theories of harm would apply across the various areas of competition law, in the assessment of anticompetitive collusion, abuse of dominance or merger control. Reducing wages obviously constitutes a prevalent theory of harm in this context. This may result from various types of conduct: horizontal cartel-like conduct, such as non-poaching agreements¹³²⁸, or supplier wage suppression the monosponist orchestrating

1327 J. Azar, I. Marinescu & M. Steinbaum, *Antitrust and Labor Market Power*, Econfip Research Brief (May 2019), available at <https://econfip.org/wp-content/uploads/2019/05/Antitrust-and-Labor-Market-Power.pdf>. See also I. Marinescu & H. Hovenkamp, "Anticompetitive Mergers in Labor Markets," Faculty Scholarship at Penn Law, February 20, 2018, https://scholarship.law.upenn.edu/faculty_scholarship/1965;

1328 See, the US Department of Justice (DOJ) and Federal Trade Commission (FTC), *Antitrust Guidance for Human Resource Professionals* (October 2016), available at <https://www.justice.gov/atr/file/903511/download> 3 (finding that agreements among employers not to recruit certain employees or not to compete on terms of compensation are illegal and also raising concerns for agreements to share information with competitors about terms and conditions of employment (although they also acknowledge that not all information exchanges are illegal) but also the active investigation by the DOJ, using its criminal enforcement authority, of non-poaching agreements in various sectors: see, *U.S. v. Knorr-Bremse AG and Westinghouse Air Brake Technologies Corporation*, <https://www.justice.gov/atr/case/us-v-knorr-bremse-and-westinghouse-air-brake-technologies>; *In re: Railway Industry Employee No-poach Antitrust Litigation*, No. 2:2018mc00798 – Document 192 (W.D. Pa. 2019); *Seaman, et al. v. Duke University and Duke University Health System*, <https://www.justice.gov/atr/case/danielle-seaman-v-duke-university-et-al> and various class actions brought by private plaintiffs, in particular *In re: High-Tech Employee Antitrust Litigation* (N.D. Cal. No. 11-CV-2509-LHK) regarding agreements between the executives of Adobe Systems, Apple, Google, Intel, Intuit, Lucasfilm, and Pixar to eliminate competition among them for skilled labour which was settled in September 2015 for \$415 million (see, <https://www.reuters.com/article/apple-google-ruling/u-s-judge-approves-415-mln-settlement-in-tech-worker-lawsuit-idUSL1N11908520150903>). In Europe,

cartels between suppliers to reduce the wage of their workers and then pass on some of the savings to the monopsonist upstream¹³²⁹. Some of these theories of harm are more speculative¹³³⁰. For instance, predatory hiring as an abuse of a dominant position where the incumbent monopsonist raises wages above the workers' marginal revenue product in order to exclude a new competitor from the market, as this would not be able to make profits and following the exit of the competitor the incumbent would be able to reduce wages below the workers' marginal revenue product¹³³¹.

Merger control will certainly become an important area of competition law enforcement regarding the effect of mergers (horizontal or vertical) on labour markets. One may expect the application of unilateral non-coordinated theories of harm in the context of horizontal mergers (mergers between competitors). Simply put, a horizontal merger reduces competitive rivalry to the extent that the target company exert a competitive constraint. Furthermore, other competitors benefit from the fact that the merged entity behaves less competitively than the two merging firm would have done absent the merger in question. The decision of the firms to increase prices following the merger, is motivated by the fact that part of the loss in sales is being captured by (diverted to) the other merging firm. Therefore, the closer are the substitute products of the merging firms, the stronger is the incentive of the merged entity to increase prices. Similar analysis may be performed as to the incentive of the merging firms to reduce wages, if the two merging firms were close competitors in labour markets. An interesting concept suggested in the context of merger control to estimate this unilateral effect is that of 'Downward Wage Pressure' (DWP) which aims to measure the effects of a merger on the wages of the workers in the labour markets affected. This concept/metric is analogous to the 'Upward Pricing Pressure' (UPP) that is used in merger control to determine the extent to which a merger and the consequent removal of a competitive constraint will alter the margins of the merging firms, the elimination of competition between the merging firms generating upward pricing pressure as the merging firm will be able to internalise the profits on sales diverted to what would be now a part of the same undertaking. UPP also takes into account the merger-specific efficiency improvements which may tend to offset the upward pricing pressure. DWP may be inspired by similar principles¹³³². However, labour theories of harm may not only be take the form of lower wages, but may also relate to the quality of the employment relation, the ability of workers to benefit a fair share from increases in their productivity, because of innovation, thus affecting their incentives, and other anticompetitive strategies that may affect the share of the

the Italian competition authority (AGCM) fined eight modelling agencies a total of €4.5 million for wage fixing agreements: see <https://www.agcm.it/media/comunicati-stampa/2016/11/alias-8448>. The UK CMA imposed fines totalling £1,533,500 on 5 model agencies for colluding instead of competing on prices for modelling services: <https://www.gov.uk/government/news/model-agencies-fined-15-million-for-price-collusion>.

1329 E. A. Posner, G. Weyl & S. Naidu, *Antitrust Remedies for Labor Market Power*, (2018) 132 *Harvard Law Review* 536, 597.

1330 *Ibid.*, 598.

1331 *Ibid.*, 598-599.

1332 For a discussion, see E. A. Posner, G. Weyl & S. Naidu, *Antitrust Remedies for Labor Market Power*, (2018) 132 *Harvard Law Review* 536, 578-583 (also suggesting merger simulation as a way forward to estimate anticompetitive effects in labour markets).

gains accruing to workers (as opposed to management and investors).

There is still little experience among competition authorities with assessing the effects of a restriction of competition on labour market. There is however some interesting experience in South Africa about the effects of mergers on employment, as part of the public interest test adopted under South African competition law¹³³³. There is case law under South African competition law on merger specific retrenchments¹³³⁴, which also proceeds to an analysis of alternative employment opportunities for the workers that were fired as a result of the merger. Including employment considerations in the analysis, in addition to concerns over wage reductions and restrictions on the conditions of employment, will require a broader standard that would be closer to a public interest one. In any case the emphasis that this rapidly developing competition law literature puts on the anticompetitive effects on labour markets already breaks with the narrow vision of consumer welfare standard and the emphasis on product markets that has prevailed so far in competition law. This raises interesting questions as to a more optimal and complementary relation between competition law and labour law.

In conclusion, new competition law concepts and metrics and the way protection of labour considerations can be integrated in the current competition law framework constitutes a fertile area for future research.

5.2.1.4. Competition law and blockchain technology: defining economic activity and regulatability issues

Determining if an entity engaging with some blockchain-related activity is an undertaking may be a relatively simple exercise. If, one takes the example of collusion managed or facilitated by decentralized ledger technology (DLT), it will all depend on the activity of the owners of the nodes (e.g. any active electronic device connected to the Internet and disposing of an IP address) supporting the network by maintaining a copy of a blockchain and eventually processing transactions. To the extent that the owners of the nodes willingly contribute their computing resources to store and validate transactions, earning a transaction fee or a reward in the native token of the specific blockchain, they exercise an economic activity. EU case law accepts that even if the activity is non-profit, it could still be considered as an economic activity if it has the potential to be 'at least, in principle' exercised by a "private undertaking in order to make profits"¹³³⁵.

1333 For an excellent discussion, see A. Raslan, *Mixed Policy Objectives in Merger Control: What Can Developing Countries Learn from South Africa?* (2016) 39(4) *World Competition* 625.

1334 To be distinguished from operational employment loss, which is dealt under labour law, although the distinction is not always easy to make.

1335 See *Joined Cases C-264/01, C-306/01, C-354/01 and C-355/01, AOK Bundesverband and others* [2004] ECR I-2493, Opinion of AG Jacobs, [27]. For an example see *Case C-437/09 AG2R Prévoyance v Beaudout Père et Fils SARL* [2011] ECR I-973.

Brazil is the only BRICS country that is currently investigating a blockchain related case. There is currently a unilateral conduct investigation regarding exclusionary practices by traditional banks against emerging technology companies (fintechs). The case is still under analysis by CADE.

Source: BRICS NCAs Questionnaire.

The absence of a profit-motive does not mean that the entity does not exercise an economic activity. EU competition law does not make any distinction between altruistic entities and entities motivated by profits, as in both cases it is possible that the specific conduct reduces competition and/or welfare regardless of the motives and preferences of the producers. A similar conclusion may be reached if one examines the activity of other intermediaries of the blockchain, such as oracles, digital wallets, digital exchanges, DApps providers, or even Blockchain as a service ('BaaS') providers. However, it is also possible that the blockchain activity may not be qualified as economic, if, for instance, it relates to 'the exercise of official authority'¹³³⁶, for instance the establishment of a public land registry using blockchain technology even if access to the public database (the registry) is provided in return for remuneration¹³³⁷, or if it is related to an exclusively social function based on the principle of 'solidarity', such as a blockchain operating in a compulsory sickness insurance scheme in order to ensure transparency and reduce the opportunity of fraud¹³³⁸.

Blockchain may also curtail the ability of competition regulators to identify the entities that would be liable for competition law infringements and to adopt appropriate remedies and sanctions. At the early stages of the development of the Internet, the thesis of the 'unregulatability' of the Internet was refuted by authors claiming that there were clearly points of control and entities that could be held liable for the risks their activity contributed in surging¹³³⁹. Like the Internet, blockchain is borderless, but crucially it is decentralized, which makes it difficult, in particular if the activity takes place in the context of public permissionless blockchains, to determine who should bear the responsibility for the social costs and the private harms generated by the blockchain-related activity. A distributed ledger may need forms of 'distributed liability': "all entities in the system need to consider contingent liability risk"¹³⁴⁰. Should that extend to all the blockchain participants, irrespective of their governance roles, or only to those that exercise a significant influence on the activity that led to the specific social costs or to the specific private harm to be compensated? And if the option of collective responsibility is finally chosen, how would this be apportioned between the various nodes, to the extent that

1336 See Case C-343/95 *Diego Cali & Figli Srl v Servizi Ecologici Porto di Genova Spa* [1997] ECR I-1547; Case C-364/92 *SAT Fluggesellschaft mbH v Eurocontrol* [1994] ECR I-43; Case C-138/11, (258).

1337 This was not considered by the CJEU as sufficient on its own right for the activity carried out to be classified as an economic activity, as its payment was laid down by law and not determined, directly or indirectly by that entity: see Case C-138/11, (258), [39] and [42].

1338 See Joined Cases C-159/91 and C-160/91 *Poucet and Pistre v v AGF and Cancava* [1993] ECR I-637; Case C-437/09, (261).

1339 See Jack Goldsmith and Tim Wu, *Who Controls the Internet? Illusions of a Borderless World* (Oxford University Press, 2006), cited by De Filippi and Wright, (21), 50.

1340 See Zetzche et al., (285), 9.

node owners in a permissionless blockchain may not even be aware of the specific conduct, or on who were the other node owners involved. Zetsche et al. emphasize the governance structure of the DLT system, noting the existence, in most DLT projects, even permissionless blockchains, of a 'DLT hierarchy' consisting of the following groups:

- (i) "the core group that sets-up the code design and (*de facto*) governs the DLT, for instance by having the technical ability and opinion leadership to prompt a hard fork of the system (under certain conditions);
- (ii) the owners of additional servers running the distributed ledger code for validation purposes [...];
- (iii) qualified users of the distributed ledger, such as exchanges, lending institutions, miners etc.; and
- (iv) third parties affected by the system without directly relying on the technology, for instance, [...] simple users, clients of intermediaries [...] etc."¹³⁴¹.

Some of these blockchain participants, but not all, may be qualified as undertakings, in that they offer goods and services on a market. For instance, it is clear that category (iv) will most likely comprise end users or consumers that do not offer products or services on a market and, therefore, will not be qualified as 'undertakings'. Of course, being a natural person does not exclude *ipso facto* the possibility of being qualified as an 'undertaking' if that person exercises an economic activity and does so independent of the power or influence exercised by the specific natural person in the governance of the DLT. For instance, it is likely that the members of the core group will not be qualified as undertakings in the case that they are employees, who they lead their DLT activity outside their normal working hours and without supervision of their employer, on a voluntary basis. In any case, it becomes crucial to identify the entities that form part of, at least the first four groups of the DLT hierarchy, before determining the governance structure of the DLT.

Determining the 'entity' to be held liable for the competition law infringement presents, however, more difficulties due to the decentralized nature of the blockchain.

The concept of 'control' plays an important role in the process of defining the scope of the competition law intervention against an 'economic entity'. It determines the tangible or intangible assets that constitute the core of the 'undertaking', defines its boundaries and are thus presumed to be under the authority of the undertaking's agents, which may engage through anticompetitive strategies the undertaking's liability¹³⁴². Under the 'single entity doctrine', several legal persons may form an 'economic entity' if a control relationship exists between them, the application of the doctrine presupposing the exercise of 'control' or 'decisive influence'¹³⁴³.

¹³⁴¹ Ibid, 22.

¹³⁴² Case 170/83, Hydrotherm Gerätebau GmbH v Compact del Dott. Ing. Mario Andreoli & C. Sas. [1984] ECR 2999.

¹³⁴³ See, inter alia, Case C-97/08 P, Akzo Nobel and Others v Commission [2009] ECR I-8237; Joined Cases C628/10 P and C14/11 P Alliance One International and Standard Commercial Tobacco v Commission and Commission v Alliance One International and Others, ECLI:EU:C:2012:479, [46]-[47], with regard to the liability of a parent company for the conduct

Should an entity, such as a mining pool, a blockchain intermediary or an intermediary or platform off-blockchain, take control of the blockchain, and the existence of 'control' will have to be determined according to the specific consensus protocol utilized by the blockchain (and if this is based on PoW, PoS or something else), then it may be considered as reasonable to hold this entity liable for anticompetitive conduct perpetrated in the context of the specific blockchain. The same deterrence reasons that have so far justified the liability of parent companies for the anticompetitive activity of their subsidiaries may also operate in this case¹³⁴⁴. However, this expansion of the personal scope of liability has also been criticized¹³⁴⁵. The discussions over the boundaries of the 'single entity' doctrine constitute a specific facet of the broader debate over 'enterprise liability' versus business participant liability, and over when the corporate veil should be pierced¹³⁴⁶.

This discussion is indirectly related to the debate about the boundaries of the 'firm' in economics, with a number of approaches glossing over Ronald Coase's seminal, but incomplete from a descriptive perspective, distinction between 'markets' and 'hierarchies'¹³⁴⁷. The discussion over the boundaries of the firm has also caught the attention of blockchain experts, who rightly observe that blockchain technology contributes to the 'hollowing out' of the firm as initiated by the digital revolution¹³⁴⁸. It is expected that blockchain technology will challenge the 'efficiency' justification for establishing centralized islands of authority (as this is put forward by the proponents of the TCE/contractual theory approach) whilst also enabling a wider distribution of entrepreneurial finance through its distinctive way of attracting finance, the ICO. 'Hollowing out' the firm does not, however, necessarily imply a corresponding growth of the sphere of activities organized through markets to the extent that the dominant strategy of blockchain develop-

of its wholly-owned subsidiary or on which it exercises a decisive influence; Art. 3(2) & 3(3) of Council Regulation (EC) No. 139/2004 on the Control of Concentrations Between Undertakings, OJ 2004 L 24/1 (in the context of merger control).

1344 C. Koenig, *An Economic Analysis of the Single Economic Entity Doctrine in EU Competition Law*, (2017) 13(2) *Journal of Competition Law and Economics*, 281-327.

1345 For a criticism of this case law, see A. Kalintiri, *Revisiting Parental Liability in EU Competition Law*, (2018) *European Law Review*, 145, noting that it may deprive undertakings of the protection afforded to them by the Charter of Fundamental Rights and the general principles of EU law.

1346 For a discussion, see E. Orts, *Business Persons – A Legal Theory of the Firm* (Oxford University Press, 2013).

1347 R. Coase, "The Nature of the Firm", (1937) 4(16) *Economica*, 386. Williamson added 'hybrids': O. Williamson, *The Mechanisms of Governance* (Oxford University Press, 1996). Some approaches explain the emergence of firms, and their boundaries, by transaction costs economics ('TCE') and more broadly contractual theories of vertical integration (see, inter alia, O. Williamson, *The Economic Institutions of Capitalism* (Free Press, 1985); P. Joskow, "The New Institutional Economics: Alternative Approaches", (1995) 151(1) *Journal of Institutional and Theoretical Economics*, 248). Others focus on property rights, by identifying the allocation of residual decision rights with the ownership of the assets of the firm (tangible and intangible) O. Hart & J. Moore, *Property Rights and the Nature of the Firm*, (1990) 98 *Journal of Political Economy*, 1119. Others take an agency perspective, defining the firm as 'a nexus of agency relationships including managerial lines of authority, employment and structures of governance': Orts, 13. A more dynamic perspective views the boundaries of a firm as related to its strategy to leverage its internal capabilities in related markets or to exploit its superior management capabilities and resources: Wernerfelt, 171.

1348 C. Mulligan, *Blockchain Will Kill the Traditional Firm* (imperial.ac.uk, 16 October 2017), <<https://www.imperial.ac.uk/business-school/knowledge/finance/blockchain-will-kill-the-traditional-firm/>>.

ers and intermediaries may be to build ‘walled gardens’ and to architecture eco-systems that could progressively lead to some form of centralization. In this context, determining the entity that could be found liable for a competition law infringement might be an easier task.

Note that, in contrast to the functional approach of EU competition law in defining an undertaking, US antitrust law applies, in principle, to ‘persons’, the concept being broad enough to cover entities having various forms without being necessary to define *ex ante* if the specific entity exercises an economic activity. The term ‘person’ is defined in Section 7 of the Sherman Act as including “[...] corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the Territories, the laws of any State, or the laws of any foreign country”, hence, adopting a purely organic definition of the concept, which contrasts with the functional definition of the concept of ‘undertaking’ in EU law. In the absence of a centralized entity or fiduciary, to which liability for the competition law infringement may be ascribed, it may be difficult to determine the ‘person’ subject to the scope of the Sherman Act.

The knowledge about the governance structure of the DLT may assist regulators and competition authorities in deciding to expand, or not, the scope of liability to all DLT participants, even if they have not actively contributed to the governance of the blockchain. Legal fictions, such as the concept of ‘business networks’ may provide the conceptual framework to expand the scope of liability beyond the confines of pure ‘enterprise liability’, in order to also include entities that facilitated and/or took advantage of the activities assisted by the DLT in their own economic activity, such as the owners of nodes and qualified users. These can be various forms of blockchain participants, such as code developers (for blockchain-based protocols and smart contracts), miners, oracles, digital exchanges and wallets, information intermediaries, hardware manufacturers (in particular, for the IoT) and other commercial operators interacting with the blockchain system¹³⁴⁹.

However, one should be careful before expanding the scope of liability too far, in view of the principle of personal responsibility for infringements of competition law¹³⁵⁰ and the requirements of the European Convention on Human Rights (‘ECHR’), notably the presumption of innocence¹³⁵¹.

1349 The various layers of blockchain technology that may be subject to regulation are discussed in De Filippi and Wright, (21), 184-187.

1350 This principle explains why some fault or negligence is usually required for holding an undertaking liable for infringing competition law. The case law of the EU courts also requires, in case the conduct to which the undertaking contributed is found to be an infringement of competition law results from some collective activity with other undertakings, that the ‘undertaking in question was aware of the offending conduct of the other participants or that it could reasonably have foreseen it and that it was prepared to take the risk’: Case T-410/09 *Almanet v. Commission*, ECLI:EU:T:2012:676, [153] (emphasis added). According to the General Court, what counts is the intention of the undertaking to “help bring about the infringement as a whole”: *Ibid.* Although this case law concerns the concept of ‘single overall agreement’, in my view it shows the importance of the principle of personal responsibility in EU competition law.

1351 The jurisprudence of the EU Courts is constrained by the presumption of innocence, or the principle in *dubio pro reo* (literally: ‘when in doubt, in favor of the accused’), enshrined in Article 6(2) of the European Convention of Human Rights and Article 48(1) of the Charter of Fundamental Rights of the European Union, which requires that “any doubt in the

Deciding on how wide this liability net should extend depends on a first-principles analysis of the values of the specific enforcement system: corrective justice or economic efficiency and the least cost-avoidable principle. These first principles will influence the conceptualization of the causal link that would be required to ascribe liability to a specific entity, from the various groups listed above. One may expect the development of standards reflecting social values and concerns with regard to the allocation of risks and responsibilities, once the technology and governance structure of DLT becomes more widely understood by courts and policymakers. This may lead to different choices. A corrective justice perspective focusing on deterrence, will insist on the liability of any entity that may have contributed with its actions or omissions to the social harm. An efficiency perspective on the basis of the least cost avoidance principle will focus on the liability of the core group of developers in view of their crucial role in the design of the governance of the system¹³⁵². Others may focus on engineering the right incentives for key blockchain participants, for instance by extending liability to miners or owners of the nodes, in view of their crucial role in the operation of the DLT.

The type of sanctions and remedies that may be imposed in the event of competition law infringement is also a matter for further analysis. Individual sanctions may constitute the best option, for instance imposing a fine to the core developers. Remedies may also raise different challenges. Behavioral remedies will require a continuous supervision by the competition authority of the operation of the blockchain, which, in view of the fact that it is public and transparent, may be more easily implemented than behavioral remedies imposed against centralized platforms, which have led to a quite cumbersome process because of the mistrust between the competition authority and the undertaking controlling the platform with regard to the accuracy of the information provided to the authority. Structural remedies may be more difficult to design in view of the lack of clear points of control on which the competition authority may act, for instance by ordering divestiture and other conventional structural remedies. It is more likely that the competition authorities will adopt a mechanism design approach taking into account the complex system of incentives in operation in blockchains to promote competition-compatible blockchain architectures.

5.2.2. The material scope of competition law: filing the jurisdictional gaps of merger control

Most jurisdictions use a bright-line test based on certain turnover thresholds in order to trigger the application of merger control and corresponding duties of prior notification. As the EU Jurisdictional Notice points out the turnover is used as a proxy for the

mind of the Court must operate to the advantage of the undertaking to which the decision finding an infringement was addressed", in particular for decisions imposing fines or periodic penalty payments: see, Case T-44/02 *Dresdner Bank AG and others v. Commission* [2006] II-3567, [60]-[61]; Case T-36/05, *Coats Holdings Ltd v. Commission*, [2007] ECR II-110, [69].

1352 According to the cost-avoidance principle, responsibility should be imposed on the person best placed to avoid the loss most cheaply.

economic resources being combined in a concentration and is allocated geographically in order to reflect the geographic distribution of other resources¹³⁵³. Other jurisdictions, adopt a mixed approach combining turnover thresholds with market shares. In UK merger law, there are two alternative rules setting out the dimensional threshold beyond which a merger qualifies for review, specifically: (i) either the UK turnover of the target firm exceeds £70 million ('the turnover test'); or (ii) the merged entity has a market share of at least 25 per cent and the merger must also result in an increment to that market share ('the share of supply test'. Turnover thresholds may not be adequate in the digital economy, as many merger transactions involve start-ups, which may not have yet commercialised a product or the size of their turnover is relatively small, and not representative of their competition potential, in particular if they have developed innovative technologies, either protected by IP rights/trade secrets or protected by lead time, or hold valuable data. This requires reforms in the scope of merger control.

The European Commission has been envisaging changes to the turnover thresholds, as concerns have been raised periodically, especially in relation to transactions that include large companies in the digital and pharma sectors which, however, do not meet the threshold requirements and therefore escape the Commission's scrutiny. In this respect, the Commission recently launched a consultation on 'procedural and jurisdictional aspects of EU Merger Control'¹³⁵⁴, which proposes the introduction of a deal-size threshold in the EUMR to capture significant acquisitions where the target does not meet the current turnover-based thresholds. This is particularly relevant for innovative markets where commercial success rests on the ability to achieve a critical mass of users, so that the value of the target company depends more on the growth expectations in the long-term base rather than short-term revenue per user. The consultation follows a number of comments by Commissioner Vestager¹³⁵⁵.

This raises an important debate as to the different types of 'local nexus' requirement. One may suggest the development of industry specific criteria, for instance for pharma transactions (where patents issued or applied for may offer a more appropriate threshold) and digital services (where data volumes may be used), although transactions involving the digital economy cannot be reduced to a specific sector. Another possibility is to introduce a threshold based on deal value. This is an approach followed in the recent amendments of German and Austrian competition law.

Under the new German law, the 'value of the consideration paid in return for the trans-

1353 Commission Consolidated Jurisdictional Notice under Council Regulation No 139/ 2004 on the control of concentrations between undertakings [2008] OJ C 95/ 1, para 124.

1354 See European Commission, 'Consultation on Evaluation of Procedural and Jurisdictional Aspects of EU Merger Control' (07 October 2016– 13 January 2017), available at ec.europa.eu/competition/consultations/2016_merger_control/index_en.html

1355 See her criticism of the Facebook/ WhatsApp merger, Margrethe Vestager, EU Commissioner, 'Refining the EU Merger Control System', Speech, Brussels (10 March 2016), suggesting reviewing the notification threshold system as the acquisition was valued at approximately 22 billion dollars. Vestager suggested a system where additional factors, such as deal value or impact on innovation, should form part of the notification threshold. This merger was not caught under the turnover threshold of the EUMR, but was eventually assessed by the Commission as a result of a case referral.

action' will include all consideration paid for the assets and any other consideration of monetary value that the acquirer receives from the seller in connection with the transaction, including any liabilities assumed by the acquirer¹³⁵⁶.

The German explanatory memorandum clearly states that milestone payments and consideration based on earn-out clauses etc. also have to be taken into account when calculating the value of the transaction. The exact calculation of the value of the transaction, however, – in particular with regard to milestone and royalty payments – is hotly debated. Based on our experience in one of the first merger control proceedings concerning the new value-based filing threshold, the Bundeskartallamt takes into account the so-called net present value ('NPV') with regard to earn-out payments (including milestone payments) – i.e. the Bundeskartallamt considers the time value of money.

The 'value of consideration paid in return for the transaction' is not defined under the Austrian draft law, but the explanatory memorandum uses wording similar to that of the German amendment.

The FCO has indicated in the above mentioned precedent that there are strong indications for 'significant activities in Germany' if it can be expected that the German turnover of the target will exceed EUR 5 million in the current business year.

Please note, however, that both the calculation of the value of consideration as well as the requirement of significant domestic activities under the new German and Austrian merger control law has to be assessed on the merits of each individual case.

(Please see Annex 4).

5.2.3. The geographic scope of substantive competition law and remedies

While at the end of the 1970s only nine jurisdictions had a competition law, and only six of them had a competition authority in place, more than 120 jurisdictions around the world have adopted and effectively implement competition law.¹³⁵⁷ The last few decades there has been a considerable increase in the activity of new competition authorities, in the area of merger control but also beyond.¹³⁵⁸ The more authorities are involved in reviewing global merger transactions or are investigating global cartels, the more the complexity of bilateral or multi-lateral co-operation becomes necessary. It is frequent that the same transaction will be reviewed by more than a dozen competition authorities around the world.

This proliferation of national competition laws sets important challenges for the global governance of competition law enforcement in particular for the digital economy, many markets being of a global dimensions. By global governance we refer to the management of the risks generated by the increased interconnectedness of cross-border en-

1356 Section 38 (4a) ARC

1357 OECD, Challenges of International Co-operation in Competition Law Enforcement (2014), available at www.oecd.org/daf/competition/Challenges-Competition-Internat-Coop-2014.pdf.

1358 Ibid.

forcement of competition law. An important risk involves the costs of ‘cross-jurisdictional disagreement’ which, it is alleged, may create particularly complex situations for international businesses.¹³⁵⁹ These disagreements may also affect the effectiveness of competition law enforcement, as it is increasingly more difficult for competition law regimes to impose remedies that take into account the negative externalities imposed by the specific anticompetitive conduct, not only to their own consumers and economic actors, but also to the consumers and economic actors in other jurisdictions. For instance, a global merger may affect the market of a handful of jurisdictions, each having the possibility to block it, in case of course it has a sufficient size to affect the incentives of the merging firms. As no jurisdiction controls more than 20% of the global GDP, it looks likely that if one jurisdiction takes a decision on the basis of its domestic concerns, this may potentially produce important externalities to the consumers of the other jurisdictions. It is also clear that decisions to block or clear a merger are not ‘symmetrical’: for a global merger to go through it needs the agreement of more than 4 or 5 jurisdictions, while for a global merger to be blocked, the opposition of a significant jurisdiction in terms of global GDP may be sufficient, the stricter substantive standard usually prevailing.¹³⁶⁰

The starting point for our discussion of the mechanisms put in place to deal with inter-jurisdictional tensions should be to define the meaning of ‘jurisdiction’. Jurisdiction can be defined as the government’s general power to exercise authority over all persons and entities within its territory. We generally distinguish three forms of jurisdiction: prescriptive jurisdiction (which refers to the ability of a State to create, amend or repeal legislation, in our case applicable substantive competition law), adjudicative jurisdiction (which consists in the power of a court to hear and resolve legal and factual issues under substantive legal rules and to provide the adjudicative and remedial forum to resolve disputes over rights) and enforcement jurisdiction (the state’s right to enforce this legislation through, for example, the public prosecutors or in our case competition authorities, by investigating an infringement of its laws and punishing the infringers).

The extraterritorial enforcement of competition law (prescriptive jurisdiction) has been a contentious issue, with various approaches tried by several jurisdictions. Most jurisdictions now embrace different versions of the qualified effects doctrine, initiated by Judge Learned Hand in the US *Alcoa* litigation and its progeny¹³⁶¹. In the context of the recent

1359 Ibid., p 39.

1360 Ibid., p 43.

1361 U.S. v. Aluminium Co. of America (Alcoa), 148 F.2d 416, 444 (2nd Cir, 1945), by Judge Learned Hand. See also Hartford Fire Insurance Co. v. California, 509 U.S. 764 (1993) referring to the conduct’s “substantial and intended effect” in the United States as the test to consider. The Foreign Trade Antitrust Improvements Act of 1982 (FTAIA) added a Section 6a to the Sherman Act and a Section 5(a)(3) to the FTC Act, with the aim to clarify the application of US antitrust law to conduct involving only non-import commerce, these provisions clarifying the reach of US antitrust law for conduct involving trade or commerce with foreign nations, regardless of where the conduct takes place: 15 U.S.C. § 6a (Sherman Act); § 45(a)(3) FTC Act. According to Section 6a of the Sherman Act, Sections 1-7 of the Act shall not apply “to conduct involving trade or commerce (other than import trade or import commerce) with foreign nations unless [...] such conduct has a direct, substantial, and reasonably foreseeable effect” “on trade or commerce which is not trade or commerce with foreign nations, or on import trade or import commerce with foreign nations”, or “on export trade or export commerce with foreign nations, of a person engaged in such trade or commerce in the United States”. This rather complex provi-

emphasis of competition law regimes around the world to sanction restrictions to innovation or potential competition, which is of particular interest for the digital economy, this standard may lead to an expansive extra-territorial application of competition law to the extent that the conduct in question may reduce innovation, potential competition and thus harm the consumers or suppliers in the specific jurisdiction. Quite often the only limiting principle for the extra-territorial enforcement of competition law may not relate to the issue of prescriptive jurisdiction, which as we mention can be broadly interpreted in these situations, but to enforcement jurisdiction, the latter issue framing also the exercise by an authority of its prescriptive jurisdiction. Indeed, it might prove impossible for a jurisdiction to apply competition law and impose remedies on an undertaking that has no presence, in terms of holding assets, in its territory. In this case, the enforcement of any remedies, in particular if these are structural, would require the close cooperation of the home jurisdiction where the undertaking is established or has its main centre of activity.

As a recent OECD report acknowledges, in a number of recent antitrust cases around the world, competition authorities took different approaches to the territorial delimitation of remedies, and interpreted in different ways comity consideration, which may lead to limit the scope of remedies¹³⁶². In the US, courts take into account different factors, in addition to effects, such as “whether the interests of, and links to, the United States – including the magnitude of the effect on American foreign commerce – are sufficiently strong, vis-à-vis those of other nations, to justify an assertion of extraterritorial authority”, an effect on US commerce on its own being insufficient to establish prescriptive jurisdiction as a matter of international comity and fairness¹³⁶³. This balancing

sion has led to various efforts of interpretation by the US courts, in particular focusing on the nature of the causal link to establish direct, substantial, and reasonably foreseeable effects. The 9th circuit had adopted a strict standard for directness of the effect on US commerce, as the effect must follow from “an immediate consequence of the defendant’s activity.” *US v LSL Biotechnologies*, 379 F.3d 672 (9th Cir. 2004). In 2012 the Seventh Circuit took a different approach in *Minn-Chem Inc. v. Agrium Inc.*, 683 F.3d 845 (7th Cir. 2012), where it introduced the “reasonably proximate causal nexus” standard, which enables a more expansive interpretation of Section 6(a) of the Foreign Trade Antitrust Improvements Act (FTAIA). This more expansive view was confirmed in the recent *Motorola II* judgment of the Seventh Circuit, *Motorola Mobility v. AU Optronics Corp.*, 773 F.3d 826 (7th Cir. 2014), petition for cert. filed, 83 U.S.L.W. 3745 (U.S. March 16, 2015), where the Seventh Circuit revisited a more restrictive interpretation of Section 6(a). In *Motorola I*, *Motorola Mobility v. AU Optronics Corp.*, 746 F.3d 842 (7th Cir. 2014), the Court rejected the existence of a “direct” effect on U.S. commerce because of the fact that the anti-competitive behaviour was affecting intermediary and not final products. The Second Circuit also adopted the more expansive “reasonably proximate causal nexus” standard in *Lotes Co. v. Hon Hai Precision Indus. Co.*, 753 F.3d 395 (2d Cir. 2014) (conduct was considered as within the scope even if it affected intermediary products). In a recent judgment the Ninth Circuit nevertheless insisted on the restrictive approach of “the immediate consequence test,” *US v. Hui Hsiung*, 778 F.3d 738 (9th Cir. 2015), petition for cert. filed, 83 U.S.L.W. 3745 (U.S. March 16, 2015) See, in the EU

1362 See, OECD, Roundtable on the Extraterritorial Reach of Competition Remedies – Issues Paper by the Secretariat, DAF/COMP/WP3(2017)4, noting at ¶ 23, ‘the imposition of different enforcement decisions and remedies against the same conduct is the natural result of competition rules, standards, and enforcement practices not being aligned across the world (in spite of an increasing convergence in competition regimes and enforcement procedures), as well as of market conditions differing from one territory to the next, thus justifying different decisions’.

1363 *Timberlane Lumber Co. v. Bank of America*, 549 F.2d 597 (9th Cir. 1976)

approach, which has been compared to a “jurisdictional rule of reason”¹³⁶⁴, enables the US courts to tame the unilateralism of the effects doctrine with regard to the extraterritorial enforcement of the Sherman Act. The jurisprudence of the EU courts has also examined the application of the extraterritoriality principle, for prescriptive jurisdiction but similar principles would also apply for remedial jurisdiction, from the perspective of the principles of non-interference and proportionality, which may come close to comity¹³⁶⁵. The principle of comity was also mentioned a few times by Advocate General Wahl in his Opinion in *Intel*¹³⁶⁶, the CJEU has not yet explicitly endorsed such an approach and it seems that the broad language used in *Intel* to determine when it is foreseeable that a conduct will have an immediate and substantial effect in the EU may render the application of such doctrine in EU competition law purely hypothetical¹³⁶⁷. For instance, in *Innolux*, neither considerations of comity, nor the risk of concurrent penalties imposed by foreign competition authorities bended the approach of the CJEU, which repeated its well-established jurisprudence that ‘neither the principle *non bis in idem* nor any other principle of law obliges the Commission to take account of proceedings and penalties to which the undertaking has been subject in non-member States’¹³⁶⁸.

Of course, beyond comity considerations and their eventual role in imposing competition law remedies extraterritorially, there might be some more practical concerns pertaining to the ability of all jurisdictions to enforce competition law remedies outside the territory of the imposing authority and to ensure compliance by a non-national in another territory. This may be problematic for smaller jurisdictions, in particular if the competition law remedies need to be imposed against undertakings that do not dispose of productive assets in the specific jurisdiction. Although the principle of proportionality usually leads to the competition law fine being limited to the turnover on the affected market, and most frequently this affected market coincides with the national borders of the jurisdiction imposing the remedy, one may not exclude the possibility, as competition law is now more frequently enforced to protect innovation and potential competition, in particular in the context of the digital economy, that a jurisdiction imposes a remedy against a digital platform that does not dispose of any assets in the specific jurisdiction and that the consumers of this jurisdiction are affected through indirect cascading effects across the digital value chain. This raises questions, first as to the prescriptive jurisdiction of the specific competition law to deal with indirect effects, and second as to the remedies that may be practically imposed.

Issues, such as this have already arisen with regard to antitrust patent remedies imposed in the context of the Qualcomm case in South Korea in 2016¹³⁶⁹. KFTC imposed

1364 The term was first coined by K. Brewster, *Antitrust and American Business Abroad* 18-21 (1958).

1365 See, Case T-102/96, *Gencor Ltd v. Commission* [1999] ECR II-753, paras 102-107.

1366 Opinion of AG N. Wahl, in Case C413/14 P, *Intel Corporation v. European Commission*, ECLI:EU:C:2016:788, paras 283 & 300.

1367 See, Case C413/14 P, *Intel Corporation Inc v. European Commission*, para. 51 (noting ‘that it is sufficient to take account of the probable effects of conduct on competition in order for the foreseeability criterion to be satisfied’)

1368 Case 231/14 P, *InnoLux Corp. v. Commission*, ECLI:EU:C:2015:451, para. 75.

1369 For a discussion, see OECD, *Roundtable on the Extraterritorial Reach of Competition Remedies – Issues Paper* by the Secretariat, DAF/COMP/WP3(2017)4, 16.

remedies to Qualcomm for various anticompetitive practices involving refusal or restriction of licensing of mobile communications SEPs, coercion exercised against handset makers to sign unfair licence agreements, or to license their patents for free. The remedies imposed by the KFTC included a mandatory obligation for Qualcomm to propose terms for licensing its mobile SEPs, to submit to binding arbitration in all cases where agreement is not reached, the obligation to supply handset makers with modem chipsets even if the handset maker has not licensed Qualcomm's etc.. Qualcomm argued that, the remedy had extraterritorial effects as it applied to foreign territories and patents registered in a foreign country, and claimed that this would infringe these countries' sovereignty. The argument was to consider international comity, and limit the scope of the application of the order to licences in Korea and patents registered in Korea. The KFTC held instead that the conduct of Qualcomm concerned enterprises and patents across the world, it had an impact on the global market, including South Korean consumers, and that, under these circumstances, in order to guarantee the effectiveness of the remedy and to remove successfully the anti-competitive effects, the scope of the order had to extend beyond Korea and Korean patents. This was particularly important in view of the international dimension of Qualcomm's business model and the fact that transactions were so connected across territories that the effects of the illegal conduct were likewise closely connected across national borders. The KFTC applies a number of principles when designing the remedy, in particular effectiveness, proportionality, correlation, clarity and specificity, the practicality and lawfulness of the implementation of the remedy. This remedy was criticized by some authors as constituting an 'intentional overreach' of jurisdiction by the KFTC, in particular the fact that the corrective order compels Qualcomm to amend or enter into contracts outside of Korea that it otherwise would not be required to enter into, and establishes a non-appealable arbitration process on virtually all of Qualcomm's licensing negotiations, wherever they take place¹³⁷⁰. Indeed, according to this view, the remedy applies without reference to actual effects in Korea, and may be of concern for virtually every enterprise in the smartphone value chain, thus covering the entire global ecosystem of smartphone component manufacturers and handset makers.

One may avoid this problem by conducting a thorough analysis of the domestic effect of a specific conduct on home consumers, or home total welfare, before framing the geographic scope of the remedy. This could provide some assurance on the unintentional (in terms of protectionism) nature of the extraterritoriality of the remedy, avoid different types of jurisdictional conflicts, for prescriptive or enforcement jurisdiction, and would improve overall legal certainty. However, competition authorities, also in developing jurisdictions, should be able to protect their consumers and the competitive process. If these are impacted negatively, because of conduct by foreign undertakings taking place elsewhere, and produce qualified effects, then competition law remedies should be imposed. It becomes also important to acknowledge that the digital economy may require a fresh assessment of indirect effects and the definition of the required causal link in

1370 J. F. Rill & J. M. Taladay, *The KFTC's Extraterritorial Overreach*, CPI November 26, 2017, available at <https://www.competitionpolicyinternational.com/author/nancy-2/>.

order to establish jurisdiction, in particular in view of the complexity of ecosystems and the emergence of digital value chains. This is an important issue for future research.

A possible way out of this conundrum is to enhance international cooperation, also in designing appropriate remedies, in particular during today's globalized and digitalized economy. A possible first step will be the sharing of information, between like-minded authorities, or in the context of existing cooperation networks (e.g. BRICS) that could be organized by different MoUs, one dealing with merger issues and one with antitrust. Some prior informal communication and concertation may also be fruitful for developing BRICS-wide remedies that may address competition law problems that could be of concern for all or a number of BRICS jurisdictions. If one follows a maximalist scenario this could even take the form of BRICS-wide or global commitments by the digital platform to the authorities, the latter acting jointly. These processes may be combined with the sharing of analytical tools, industry intelligence and best practices in the context of a research consortium or research platform.

5.3. The interaction of competition law with other legal fields in the digital economy: a separate fields approach or a regime of mutual reinforcement?

Competition law is one among various tools for state intervention in markets, and its contours must be defined with regard to other forms of state intervention, such as regulation¹³⁷¹. Governments intervene widely in markets to achieve various policy goals. Sometimes these policy goals align with one another and sometimes they conflict and require various trade-offs in policy responses, such as to pursue efficiency, to correct market failures, or to ensure equity and distributive justice.

The broader competition policy (which includes not only competition law but also other measures to address issues of competition in the economy) interfaces with state activity across many different levels of how government organizes economic behaviour. Government organizes economic activity in part through the shape and nature of regulation and overall state involvement. Understanding the distinction between competition law and policy clarifies competition authorities' capabilities and limitations when it comes to promoting competition in situations of a broader regulatory overlay. When considering the question of institutional design, how countries design optimal competition policy involves three choices: what to leave to the jurisdiction of competition law (and competition agencies and judges), what to assign to noncompetition authorities (such as sector regulators) exclusively as part of their jurisdiction, and how to establish concurrent jurisdiction among the competition authority and two or more regulatory authorities.

Conflicts between competition law and regulation may be direct, if regulation affects the core parameters of competitive markets by restricting competition on price, entry and

¹³⁷¹ There is a massive literature on this distinction between competition and regulation, perceived as separate spheres but still in constant interaction with each other. We note some recent contributions in Europe: N Dunne, *Competition law and Economic Regulation – Making and Managing Markets* (CUP, 2015); J Drexel & F DiPorto (eds.), *Competition Law as Regulation* (Edward Elgar, 2015).

quantity, as it is often the case for economic regulation, or lateral, in case these core dimensions of competition are not directly targeted, but regulation may nevertheless indirectly affect them, as it may be the case in situations of social or technical regulation. Economic regulation denotes the government intervention in a sector to correct a market failure arising from e.g. a natural monopoly (telecom, energy), or asymmetric information. It acts *a priori*, requires continuous monitoring and is intrusive in management. In contrast, competition law consists in a set of rules for market operation that prevents and sanctions abuses of market power, across all sectors. It acts *a posteriori*, once behavior is observed and mostly relies on the dissuasive power of sanctions. From this perspective, it is a less intrusive tool for market management in comparison to regulation.

Economic regulation's role is complementary to competition law since regulation controls monopolies that would never function efficiently under competition, its main function being to adopt measures that can control monopoly pricing. By ensuring non-discriminatory access to necessary inputs, e.g. network infrastructure, economic regulation may also facilitate competition in markets, thus enabling a greater scope of intervention for competition law. The less the regulatory regime interferes with the workings of the market, the more room for competition law. Expanded confidence in competition and markets may lead some previously regulated sectors to towards a specific competition law regime, taking into account the specificities of the economic sector, and even leading to the application of general competition law rules. This movement across the regulation/competition continuum may be observed in various sectors, such as airlines, maritime transports, telecoms. However, it may also be substitutable to competition law, as experience has shown that when markets or segments of network industries become competitive then sector-specific regulation is often substituted by competition law. Indeed, this may happen when the interaction of competition law and regulation could prove problematic, in particular if the regulatory regime aims to control prices, restrict entry, give incumbents a competitive advantage, or requires or permits some practice that competition law prohibits. These risks of substantive conflict may be exacerbated if different institutions are in charge of competition law enforcement from those in charge of regulating the specific economic sector.¹³⁷²

The situation is more complex with regard to social and technical regulation, which for instance sets and monitors standards to ensure compatibility between various products, to address privacy, or safety and environmental concerns. One may distinguish between situations of lateral conflict which may occur because competition law enforcement can jeopardise the aims followed by these various regulatory tools, from what we can call situations of regulatory osmosis, that is, the absorption of regulatory aims in the enforcement of competition law. This process may occur as a result of the pressure to interpret and enforce competition law principles in congruence to the aims and the

¹³⁷² This may be the case in the EU, as the Commission and a network of National Competition Authorities (NCAs) are in charge of competition law enforcement but National Regulatory Authorities (NRAs) are in charge of regulation. In the UK, the risk of conflict is mitigated by the fact that sector-specific regulators have concurrent enforcement powers with regard to competition law enforcement in their respective economic sector of responsibility.

structure of the entire legal system to which competition law is integrated. It is we think uncontroversial to argue that a competition authority or a judge enforcing competition law should strive to interpret the law in accordance to the broader moral and legal principles undergirding its legal system.

One may distinguish two broad situations here.

First, it is possible that competition law includes among its own objectives the consideration of public policy or that sector-specific regulators that have concurrent jurisdiction to apply competition law may have more than one aims in their mission statement and they often need to take into account and satisfy all these objectives.

Second, even if one does not integrate these concerns as 'objectives' to be followed by the competition authority, one needs to 'take into account' the broader principles of the legal system when interpreting the law, focusing on the way these are transcribed in its legal and institutional context, in particular for areas like competition law, where the legal rules do not provide much detail on the way one should interpret them, and statutory interpretation plays an important role. Hence, one may distinguish between various degrees of the 'duty' to take into account public interest concerns followed by social and technical regulation. A strong and extensive in scope duty if these are listed among the objectives of competition law or in the mission statement of regulators enforcing competition law, which means that the decision-maker should maximise all the objectives or to the extent there is some hierarchy between them prioritise some objectives. A weaker one, in all other circumstances, when these objectives must be taken to a certain degree into account so that the legal system does not create conflicting demands from economic actors, and, more broadly, the integrity of the legal system does not suffer.

The implementation of these broad principles in the digital economy will require a joint effort from competition authorities, horizontal and sector-specific regulators, as well as courts. The Facebook case in Germany provides an interesting illustration of the difficulties that may lie ahead when competition authorities rely on other areas of law, in the specific occurrence data protection law, to put forward theories of harm that almost automatically conclude that there is a competition law infringement from the moment a specific conduct adopted by a dominant undertaking infringed data protection law, or any other area of law, the authority balancing simultaneously interests under antitrust law *and* data protection law¹³⁷³. This approach was rejected by a decision of the OLG Düsseldorf of 26 August 2019¹³⁷⁴, the Court taking a different perspective on the question of whether an abuse of market power by Facebook can be based solely on the assumption of the Bundeskartellamt that the conditions of use at issue violate mandatory provisions of data protection law. The Bundeskartellamt assumed that the infringements of data protection law it had identified was only made possible by Facebook's position of market power (causal link). As a result, users would have virtually no option

1373 Bundeskartellamt, Facebook decision (2019), paras. 894-913, available at https://www.bundeskartellamt.de/Shared-Docs/Entscheidung/EN/Entscheidungen/Missbrauchsaufsicht/2019/B6-22-16.pdf?_blob=publicationFile&v=5,

1374 http://www.olg-duesseldorf.nrw.de/behoerde/presse/Presse_aktuell/20190826_PM_Facebook/20190826-Beschluss-VI-Kart-1-19-V_.pdf

but to agree to the terms of the contract, which constitutes abusive behaviour. The OLG Düsseldorf, however, rejected this assumption on the grounds that an (assumed) violation of data protection law by a dominant company does not necessarily constitute an abuse of market power. The court stated, that the Bundeskartellamt had not sufficiently elaborated why it was Facebooks market power that enabled them to enforce the terms and conditions upon the users. Failing to do so, it was not comprehensible why a contractual partner affected by a data protection law infringement of a dominant company was worthy of protection by competition law while the contractual partner of a non-dominant firm in the same position was not. This puts emphasis on the need for an independent competition law assessment, in addition to a data protection law one, *before* concluding as to the existence of an abuse. The court furthermore pointed out that the data provided by the user to Facebook can be endlessly duplicated, which is why the user is not economically weakened by the processing of data. The creative interaction between competition law and other regulatory regimes on data protection, interoperability, data portability, at the level of building specific theories of harm for the digital economy opens an important space for experimentation for competition authorities in the future.

5.4. Re-designing competition law remedies and procedures for the digital economy

These changes may take two forms: (i) ensure the rapidity of competition law enforcement so as to avoid acting in situations when market tipping has already occurred and it might prove impossible to reverse the anticompetitive outcome; (ii) develop remedial action that takes into account the broad effects of the anticompetitive conduct, which might better reflect the complexity of digital markets.

5.4.1. Rapidity of enforcement action: interim measures in order to ensure the effectiveness of enforcement in the digital era

Striving to catch up with the fast-passed digital world, some competition authorities are considering utilizing interim measures to contain the possible threat to competition pending the final conclusion of a long and complicated investigation. A recent announcement by the European Commission in the Broadcom investigation started the debate about the use of said measure as temporary remedy in the rapidly evolving digital economy.¹³⁷⁵ Another tool has also been used frequently by competition authorities in recent years in order to close competition investigations in exchange for commitments put forward by relevant parties i.e. commitments or consent orders.

In this Section we will discuss the use of such measures from a global perspective, main-

¹³⁷⁵ The European Commission Press release, Antitrust: Commission opens investigation into Broadcom and sends Statement of Objections seeking to impose interim measures in TV and modem chipsets markets Brussels, 26 June 2019. Available at https://europa.eu/rapid/press-release_IP-19-3410_en.htm (last accessed August 25, 2019)

ly focusing on the EU (including the UK) and the US as well as from a BRICS perspective, with a focus on digital market cases. In each Section, we will answer the following questions: are interim measures / injunctions and commitments among the enforcement tools in the jurisdiction? If yes, what are the relevant criteria to order said measures? How have these orders been reviewed by the courts? Finally we will compare the use of interim measures with commitment decisions.

5.4.1.1. Interim Measures and Commitment Decisions in EU Competition Law and Practice

5.4.1.1.1. Interim measures

The right to adopt interim measures is stipulated under Regulation 1/2003.¹³⁷⁶ The regulation and practice set the criteria for adopting said measures. To grant an interim relief, the measure must address a conduct of an undertaking that gives rise to a *prima facie* finding of infringement of EU competition law, and only used in cases urgency to address risk of serious and irreparable damage to competition, or, a situation which is intolerable for the public interest.¹³⁷⁷ The measure should also be indispensable to the effective resolution of the case. It should be temporary and conservatory addressing a time-sensitive situation until a final decision is adopted. It basically should aim to retain the *status quo* pending a final decision. The EU Commission should also take into consideration the legitimate interest of all parties involved. In addition, the EU Commission is bound by the principles of procedural fairness¹³⁷⁸ and availability of judicial review of these measures.¹³⁷⁹ Under the regulation, the EU Commission can order interim mea-

1376 Article 8 of Regulation 1/2003 Available here <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:001:0001:0025:EN:PDF>

1377 "The 'public interest' is a reference to EU competition policy objectives as well as the interests of Member States." Alec J. Burnside and Adam Kidane, Interim Measures: An overview of EU and national case law, *Concurrences*, N°86718, June 7, 2018, p.11.

1378 General procedural safeguards apply (Regulation 17 and Regulation 99/63). These rights include the obligation to issue statement of objection, access to file and opportunity to comment (in writing or oral hearing hearing).

1379 Initially, there was no express authority granted to the European Commission to adopt interim measures under EU competition rules. Rather the use of interim measures were introduced to EU competition enforcement via court order in Camera Care case. In this case, the Court confirmed that the Commission enjoys the power to order interim measures and provided guidelines for the Commission to follow to grant these provisional measures Camera Care Ltd. v. Commission (No. 792/79), [1980] 1 E.C.R. 119, 127. In this case the plaintiff, Camera Care Ltd, alleged that Hasselblad (GB) Ltd. and Victor Hasselblad A/B of Sweden have refused to supply Camera Care with Hasselblad cameras and spare parts in violation of competition rules and requested the commission take an interim measure in this regard. The Commission refused on the basis that it lacks the power to adopt interim measures. Camera Care then challenged the decision in court and won. In its decision the court found that "within the bounds of its supervisory task conferred upon it in competition matters by the Treaty and Regulation No 17, to take protective measures to the extent to which they might appear indispensable in order to avoid the exercise of the power to make decisions given by Article 3 from becoming ineffectual or even illusory because of the action of certain undertakings." Other relevant cases include ECS/AKZO (interim measures), 26 O.J. EUR. COMM. (No. 252) 13 (1983), [1983] ECS claimed that AKZO's price cutting caused ECS to lose a substantial part of its business and forced ECS to match AKZO's prices, creating a real risk that ECS would have to cease trading altogether.³⁰ The Commission granted interim measures, ordering AKZO not to sell below certain prices

sure (*ex officio*) to address damage to competition but not to individual undertakings. However, a concerned party may make its request to the NCAs. Despite the express provision under Regulation 1/2003 of the right of the Commission to adopt interim measures, it was hardly used.¹³⁸⁰ Among the reasons discussed for this limited adoption of interim measures are (i) the limited resources versus increased burden on the Commission that opens the on-going investigation to judicial review and further litigation and (ii) the high evidentiary burden in order to satisfy the substantive test for issuing interim measures. Most relevant here is the difficulty in adopting interim measures in complex or novel cases involving conduct that do not give rise to clear-cut infringements to EU competition rules.

However, the EU Commission is studying the matter taking into consideration the practice of other NCAs, especially France, in this regard.¹³⁸¹ In its recent Directive (EU) 2019/1, the EU Commission stated that NCAs should have the power to impose interim measures, as a minimum, in cases where an NCA has made a *prima facie* finding of infringement of Article 101 or 102 TFEU and where there is a risk of serious and irreparable harm to competition.¹³⁸² It is added that the EU Commission will encourage the use of interim measures in order 'to deal with developments in fast-moving markets'.¹³⁸³

Box 6.1.: NCAs across the Channels

Lowering the burden of proof for interim relief French Google Cases

The French competition law confers to the French Competition Authority ("FCA") power to order interim measures (injunction) backed up by a coercive fine against the infringing party. The FCA can adopt interim measures on the ground that the potentially infringing conduct results in 'a serious and immediate prejudice to the economy in general, to the sector at stake, to the interests of consumers or to those of the complainant'.

until the final decision was reached. C.M.L.R. 694.6. Ford-Werke AG (interim measures), 25 O.J. EUR. COMM. (No. 256) 20 (1982), [1982] 3 C.M.L.R. 2677. Ford of Europe Inc. and Ford Werke AG v. Commission (Nos. 228/82 & 229/82), [1984] 1 C.M.L.R. 649.8. Ford case, where German dealers were complaining about protection against parallel imports extended to UK dealers. The Commission adopted an interim measure ordering Ford Germany to withdraw the circular adopted to that effect and have right-hand drive cars be part of their delivery range for German dealers. For a detailed account see Virginia Morris, Interim Measures in EEC Competition Cases, 3 Int'l Tax & Bus. Law. 102 (1985).

1380 Research found that before Regulation 1/2003 came into force, interim measures were rarely used where in only 8 out of 13 cases the Commission has considered interim measures. There has only been one case – in over 20 years between Camera Care and the entry into force of Regulation 1/2003 – where an interim measures decision was adopted *ex officio*, namely Ford Werke. Following the entry into force of Regulation 1/2003, except for an attempt in 2001 in IMS case, there have been no interim measures decisions. In the IMS case the Commission subsequently withdrew the decision to adopt interim measures following the EU court judgment resulting in the suspension of the interim measures. See Burnside and Kidane, *supra* n. 4 at 8 and Case COMP D3/38.044 NDC Health/IMS Health: Interim Measures, OJ 2002 L59/18.

1381 Vestager revives dormant antitrust weapon against tech groups, Financial Times, (June 27, 2019) available at <https://www.ft.com/content/d2796956-981b-11e9-8cfb-30c211dcd229>

1382 Article 11 of the Directive (EU) 2019/1 of the European Parliament and of the Council of 11 December 2018 to empower the competition authorities of the Member States to be more effective enforcers and to ensure the proper functioning of the internal market PE/42/2018/REV/1, OJ L 11, 14.1.2019, p. 3 th.

1383 Ibid.

The experience of the FCA has successfully applied interim measures in cases involving energy markets, broadcasting and fast-moving markets (like online advertising). Thus, in 2010 FCA imposed interim measures on Google following a complaint from Navx alleging an abuse of dominance after its AdWords contract was terminated (Navx decision 10-MC-01). The very recent case also involves Google that suspended the Ad service accounts of Amadeus, the complainant, without explanations. In this case FCA justified the interim measures because Amadeus had suffered a massive and very sudden loss of turnover (drop of 90% between 2017 and 2018) and was under the threat of exiting the market. The interim measures imposed included:

- clarification of the Google Ads rules applied to directory enquiry information services;
- a review of Amadeus' situation under these new rules with a view to giving it access, as appropriate, to the Google Ads service again if the ads comply with them.

UK Online Auction Platform Market

In 2014, the CMA was given enhanced powers to impose interim measures but to date, it has not yet used them. In contrast to the EU Commission where it must show (i) a 'serious and irreparable harm', (ii) assess the irreparable damage to competition (not a single competitor) and (iii) be able to demonstrate a prima facie infringement case, the CMA should only have a reasonable suspicion of an infringement. The Auction Services case is to date the CMA's only abuse of dominance case in digital markets, and the only case in which the CMA has considered interim measures.

Following the opening of an investigation by the CMA into ATG Media, Bidon. This, a competitor to ATG Media, made an application for interim measures, which ultimately resulted in ATG Media offering commitments to address the competition concerns that had been identified by the CMA. As a result, the CMA's 2018/2019 annual report expressly identified interim measures as a tool they will be using more, referring to the online auction platform case as an example. However, the UK competition authority remains cautious about accepting applications and the costs of an application can affect the approach of both an applicant and a company subject to a complaint.

At the moment, there has been no divergence in approach or outcomes and this may reflect the CMA's (understandable) hesitancy to practically implement the legal changes or complainants not yet fully taking advantage of the opportunity of the law.

Sources: The Autorité de la concurrence's Annual Reports 2008-2018, available at http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=15 (last accessed August 28, 2019).

The Press release 'The Autorité de la concurrence orders Google to implement in an objective, transparent and non-discriminatory manner the content policy of its AdWords service' (10 June 2010), available at http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=368&id_article=1420 last accessed August 28, 2019).

Simon Chisholm (CRA), Sarah Long (Euclid Law) and Helen Parker (BidonThis), Interim measures in the UK: lessons from the online auction services case, 17 January 2019 For details of the online auction case see <https://www.gov.uk/cma-cases/auction-services-anti-competitive-practices> (last accessed August 28, 2019)

5.4.1.1.2. Consent orders (commitment decisions)

In contrast to interim measures, consent orders (commitments) are used more frequently by the European Commission to conclude cases. Under Article 9 of Regulation (EC) No 1/2003, an undertaking may offer a commitment to address competition concerns raised by the EU Commission.¹³⁸⁴ The EU Commission may accordingly conclude cases by a commitment decision without the establishment of an infringement. Com-

¹³⁸⁴ Regulation (EC) No 1/2003. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003R0001&from=EN> (last accessed August 28, 2019).

mitments may not include the imposition of a fine and thus are not used in cases with the most serious violations such as cartels. Commitments may be behavioral (provide certain services or goods under specified conditions) or structural (divestiture of assets of the concerned companies).¹³⁸⁵ The European Commission may decide to adopt a decision making the commitment binding on the parties. The same procedural rights of the parties under competition proceedings are also extended in a commitment procedure. While third parties can submit comments pursuant to a Notice of Commitment published by the Commission.

From 2004 to 2016, in 35 out of 57 antitrust decisions (excluding cartels), the Commission adopted commitment decisions with the majority being behavioural commitments and about a quarter were structural.¹³⁸⁶ These were used, in particular, in markets being subject to liberalisation, such as the energy sector and markets that require prompt intervention. They are also subject to judicial review.

5.4.1.2. Interim measures and Negotiated Settlement (Commitment) in US Antitrust Law and Practice

5.4.1.2.1. Interim measures

In U.S. antitrust law, two concepts applied by the courts and used in merger cases have the same effect as interim measures or relief, namely temporary restraining orders (TROs) and preliminary injunctions. While both the government and private parties can seek interim measures in civil cases.¹³⁸⁷ TROs require proof of immediate and irreparable injury that will occur before the adverse party has a chance to oppose the motion and typically last less than 10 days.¹³⁸⁸

Courts however demand more demonstrative and exact proof for preliminary injunctions. The criteria for such injunction are: (1) a substantial likelihood of success on the merits; (2) a substantial likelihood that failure to grant relief will cause irreparable injury for which monetary damages cannot substitute; (3) the potential damage outweighs any harm that the injunction may cause to the opposing party; and (4) the injunction will promote the public interest.¹³⁸⁹ When the government requests this relief, a court may presume it has satisfied the fourth element. Preliminary injunctions can take the form of a negative or positive requirement. They can take the form of a negative injunction

1385 OECD, EU Submission, Commitment Decisions In Antitrust Cases, DAF/COMP/WD(2016)60, June 2016, p. 8. [https://one.oecd.org/document/DAF/COMP/WD\(2016\)60/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2016)60/en/pdf) (last accessed August 28, 2019).

1386 "16 decisions involved Article 101 TFEU prohibiting anticompetitive agreements, 18 decisions involved Article 102 TFEU prohibiting abuse of dominance, and one involved both Articles. 74% of all commitments was of behavioural nature and 26% was structural." *ibid*, p. 8. [https://one.oecd.org/document/DAF/COMP/WD\(2016\)60/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2016)60/en/pdf) (last accessed August 28, 2019).

1387 P. Marsden, S.W. Walles, P. Fabbio, Antitrust Marathon V: When In Rome Public And Private Enforcement of Competition Law, 9(3) European Competition J. 503, 541 (2013), <http://http://ssrn.com/abstract=2373207>.

1388 *Id.*, 541.

1389 *Id.*, 542.

(orders a party to cease particular behaviour) or a positive injunctions (demand an affirmative set of actions: for example, licensing technology, continuing supply, or granting access to indispensable inputs).¹³⁹⁰ To decide the merits of a preliminary injunction, courts balance the probability that the agencies ultimately will succeed on the merits against the public (not private) equities.¹³⁹¹ In this context, courts may consider the efficiencies that defendants proffer.

In all of the cases pertaining to preliminary injunctions or TROs available,¹³⁹² relevant cases involved mergers rather than unilateral or coordinated conduct. In this regard, the antitrust agencies seek to prevent parties from completing a merger,¹³⁹³ filing for interim measures to maintain the status quo while administrative or court proceedings go forward. They usually argue that a completed merger will prevent direct competition between the parties, precluding lower prices and better services and in this case an interim measures will enable the Court to order effective relief after deciding the merits of the merger.¹³⁹⁴ The agencies may claim that they cannot re-establish effective competition after the merger, or that substantial harm to competition will occur in the interim. *Id.*, Para. 80. Courts will consider whether entry or expansion could counteract anticompetitive effects in the near term.

Box 5.2: Preliminary injunctions in US antitrust enforcement (select cases in digital markets)

In CCC Holdings, a technology merger the FTC sought a TRO and a preliminary injunction to prevent the merger from causing higher prices, worse product quality, and fewer services. Nearly immediately after the District Court issued a TRO and preliminary injunction, the parties abandoned the merger. This result customarily occurs in these cases.

In U.S.A. v. Microsecond Corp, the DOJ has requested a TRO and a preliminary injunction to prevent the acquiring party in a merger from destroying, selling, or ceasing the operations of the target's assets.

In FTC v. Warner Chilcott Holdings Co., LTD, a permanent injunction case presented facts in a non-merger context that a court may consider as close to sufficient to warrant interim measures. It involved a horizontal agreement not to compete between a branded and generic seller of prescription drugs.

The generic producer planned to sell the drug upon receiving FDA approval. The branded drug maker agreed to pay the generic producer \$20 million if it refrained from selling the drug in the U.S. for 5 years. *Id.*, Para. 3.

¹³⁹⁰ *Id.*, 543.

¹³⁹¹ *Id.*, Para. 78.

¹³⁹² Author's review of available cases at the FTC and DOJ websites (as of August 2019).

¹³⁹³ The FTC has authority to pursue provisional relief under Sect. 13(b) of the FTC Act, 15 U.S.C. Sect. 53(b), and both agencies have that authority under Sect. 16 of the Clayton Act, 15 U.S.C. Sect. 26. *FTC v. Staples*, Complaint for Temporary Restraining Order and Preliminary Injunction Pursuant to Sect. 13(b) of the FTC Act, Civil Action No. 15-cv-02115, p. 2 (D.D.C. 9 Dec. 2015).

¹³⁹⁴ *Id.*, Para. 21

The effect of the agreement was to deprive consumers of a cheaper option to an expensive drug. *Id.*, Para. 4. In this context, a court might grant a preliminary injunction when the FDA was about to approve the drug, or to keep the generic maker from ceasing to sell the drug.

Sources: In the Matter of CCC Holdings Inc. and Aurora Equity Partners III L.P., Complaint, FTC Docket No. 9334, Para. 3 (2009). AD Paras. 1, 4, 21-22, 25-26, 28-29. *D U.S.A. v. Microsecond Corp.*, Plaintiff's Emergency Motion for a Temporary Restraining Order and Preliminary Injunction, Civil Action No. 1:08CV1311, p. 1 (E.D. Va. 2008).

FTC v. Warner Chilcott Holdings Co., LTD, Complaint for Injunctive and Other Equitable Relief, Para. 1 (D.D.C. 2005).

5.4.1.2.2. Negotiated settlements (commitments)

As for commitments, both agencies, the DOJ and the FTC, use this tool in most of their mergers as well as civil non-merger antitrust cases.¹³⁹⁵ The test for an acceptable negotiated settlement (commitment) is whether it addresses the anticompetitive conduct in a way that eliminates the harm and prevents its recurrence.¹³⁹⁶

Figure 5.4.: Agencies settlements 2011 -2016

Fiscal Year ¹⁴	Civil Nonmerger Cases with Negotiated Settlements		Civil Nonmerger Cases with Litigated Outcomes		Merger Cases with Negotiated Settlements		Merger Cases with Litigated Outcomes	
	DOJ	FTC	DOJ	FTC	DOJ	FTC	DOJ	FTC
2011	4	1	0	1	12	9	0	1
2012	5	4	0	1	7	16	1	1
2013	7	4	1	0	4	17	0	1
2014	2	6	0	0	8	14	1	0
2015	4	7	1	1	9	18	0	2
2016*	2	4	0	1	6	8	0	2

*Through April 30, 2016

Source: US submission to OECD (2016)

1395 'DOJ files consent decrees, or civil consent judgments, in a U.S. federal district (trial) court to obtain effective relief without taking a case to trial. The FTC issues negotiated administrative consent orders under its statutory authority, to resolve violations without the need for a trial. DOJ and FTC use consent decrees and consent orders, respectively, most often to settle merger cases, but also use them to settle alleged competition violations that include both unilateral conduct, such as exclusive dealing and monopolization,⁴ and concerted action cases, such as unlawful agreements'. OECD, US Submission, Commitment Decisions In Antitrust Cases, DAF/COMP/WD(2016)60, June 2016, Available at [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD\(2016\)23&doclanguage=en](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD(2016)23&doclanguage=en) (last accessed August 28, 2019).

1396 'While considering a consent decree, the court shall determine whether the consent decree is in 'public interest'. (a) the competitive impact, including termination of alleged violations, provisions for enforcement and modification, duration or relief sought, anticipated effects of alternative remedies actually considered, and any other considerations bearing upon the adequacy of such judgment; and (b) the impact of entry of such judgment upon the public generally and individuals alleging specific injury from the violations set forth in the complaint including consideration of the public benefit, if any, to be derived from a determination of the issues at trial.' Ibid OECD

5.4.1.3. Interim Measures and Commitment Decisions in BRICS Countries Competition Law and Practice

5.4.1.3.1. Interim measures

The availability of interim measures or injunctions to competition authorities varies greatly among BRICS countries.

In **Brazil**, CADE has powers to issue interim measures in conduct cases.¹³⁹⁷ Specifically, the General Superintendence or the Reporting Commissioner can adopt interim injunctions in any phase of the proceedings when there are “sound reasons to believe that the defendant directly or indirectly caused or may cause irreparable or substantial damages to the market, or that he/it may render the final outcome of the proceedings ineffective”.¹³⁹⁸ The measures entail the immediate cessation of the practice and, if materially possible, the reversal to the situation before the practice.¹³⁹⁹ The authorities can impose daily fines of 5,000 BRL, which can be increased up to 50 times, depending on the gravity of the conduct and the economic situation of the parties.¹⁴⁰⁰ At the request of the affected party, these measures can be reviewed by CADE’s Administrative Tribunal.¹⁴⁰¹

CADE has applied interim measures in some cases during the past years, including: a) in 2009 the payment card vertical conduct case, in which interim measures have been adopted and upheld against ‘major players with presence in Brazil to refrain them to maintain the exclusivity provisions provided in their agreements’;¹⁴⁰² b) in 2015, in the gas supply unilateral conduct case, in which preventive measures were imposed against Petrobras to avoid cross subsidising its downstream consortium;¹⁴⁰³ in this case, the Superior Court of Justice upheld the decision taken by CADE;¹⁴⁰⁴ c) in 2017, in the fuel resale cartel case.¹⁴⁰⁵ d) in 2019, in the national market of services for electronic identification

1397 Law 12,529 (2011), Article 84. See also OECD, ‘Peer Reviews of Competition Law and Policy: Brazil’ (2019), 28-29 <https://www.oecd.org/daf/competition/oecd-peer-reviews-of-competition-law-and-policy-brazil-ENG-web.pdf>. (last accessed August 28, 2019).

1398 Law 12,529, art 84 caput and art. 11, IV and art 13 XI.

1399 Law 12,529 art 84 § 1º

1400 Law 12,529 art 39.

1401 Law 12,529 art 84 § 2º and art 9, VI

1402 R. Inglez de Souza, ‘Competition Law in Brazil: You Should Take It Seriously’. Available at https://www.worldcommercereview.com/publications/article_pdf/150 (last accessed August 28, 2019). See injunction in payment card case here: <https://latinlawyer.com/article/1088570/cade-upholds-redecard-injunction> Administrative Proceedings No 08012.004089/2009-01; Plaintiff: ABRANET – Associação Brasileira de Internet; Defendant: Redecard SA. Preventive Measures Upheld by CADE on 26 August 2009.

1403 Administrative Proceedings no PA 08012.011881/2007-41 Plaintiff: Comgas Defendants: Petrobras and Gemini Consortium; Preventive Measures Upheld by CADE in April 2015.

1404 STJ, Special Court, Reporting Judge Laurita Vaz, 19 April 2017 Claimant: White Martins Respondent: CADE, available at <https://stj.jusbrasil.com.br/noticias/450361313/confirmada-decisao-que-restabeleceu-medida-preventiva-do-cade-em-relacao-ao-consorcio-gemini> (last accessed August 28, 2019).

1405 OECD (2019), p.51-52.

of vehicles in parking spaces to ensure the sharing of infrastructure of antennas with competitors in a non-discriminatory way, summarised below:¹⁴⁰⁶

Box 5.3. – CADE's Interim Measures in the Digital Sector (2019)

After Veloe's complaint against companies CGMP and ConectCar, CADE initiated an administrative inquiry to investigate alleged market foreclosure and discriminatory practices, in the market of electronic payment solutions for parking, through digital automobile recognition technology. Veloe complained against CGMP's conditions for sharing antenna recognition and CGMP's exclusivity arrangements with the biggest parking lot company – Estapar. After Veloe's appeal to the General Superintendence's Decision to deny the request, CADE's Commissioners granted the request for provisional measures, imposing sharing obligations toward CGMP and ConectCar, which, later on, managed to reverse the remedies. The measures imposed on CGMP are still holding and they seek to avoid market foreclosure, raise of barriers to entry and discriminatory conditions in sharing parking antennas.

Source: Clarificatory Proceedings in the Appeal to Preventive Measures nº 08700.000989/2019-94 Reporting Commissioner Polyanna Vilanova. Decision 11 June 2019

The Russian competition law does not set forth any interim measures available for the competition authority.¹⁴⁰⁷ In this context, all measures imposed by the Russian FAS are based on final decisions concerned antitrust violations. FAS can issue a warning, which is enacted before the violation is formally established and aims at prevention of further harm to competition and/or consumers. However, warnings cannot be considered as interim measures, because if the undertaking complies with the warning, the competition authority does not launch the formal antitrust investigation.¹⁴⁰⁸ FAS can also ask for injunctive relief during administrative procedures in commercial courts.¹⁴⁰⁹ Such interim measures may be undertaken by a court if failure to take these measures may obstruct or render impossible the execution of a judicial act, as well as to prevent significant damage to an applicant. No statistics can be found on how often the courts apply interim measures in antitrust cases (including the cases related to digital markets), though there are certainly such examples.¹⁴¹⁰

In **India**, the Competition Commission of India ('CCI') has 'power to issue interim orders', when it is satisfied that an act in contravention of provisions related with 'anti-competitive agreements' (S.3(1)), 'abuse of dominance' (S.4(1)) and 'combinations' (S.6) has been committed and continues to be committed or is about to be committed.¹⁴¹¹ In

1406 Appeal to Preventive Measures nº 08700.000989/2019-94 Plaintiff: Companhia Brasileira de Soluções e Serviços. Interested Parties: Centro de Gestão de Meios de Pagamentos Ltda. e Conectcar Soluções de Mobilidade Eletrônica S.A. Reporting Commissioner Conselheira Paula Azevedo. Decision 20 March 2019.

1407 Except for suspension of auctions disputed in FAS of Russia (Paragraph 11 of Article 18.1 of the Federal law 'On Protection of Competition' dated 26 July 2006 No. 135-FZ).

1408 Para 7 Article 39.1 of the Federal law 'On Protection of Competition' dated 26 July 2006 No. 135-FZ.

1409 Articles 90, 91 and 99 of the Arbitration Procedure Code of the Russian Federation.

1410 See, for instance, injunction relief applied following the action brought by FAS of Russia against shareholders of Vimpelcom (mobile operator): Igor Tsukanov, 'Vimpelcom Appealed Against Interim Measures Imposed Following The Suit Filed By FAS' (Vedomosti, 09 June 2012) https://www.vedomosti.ru/technology/articles/2012/06/09/kontrmery_vympelkoma.

1411 Section 33 of the Competition Act, 2002, https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf.

such situations, CCI can make orders to temporary restrain any party from carrying on such act until the conclusion of inquiry or until further orders. Thus the scope of this power seems very wide. This power, however, has not been exercised frequently by the CCI. There are at least three cases where interim relief have been allowed by the CCI,¹⁴¹² while in at least two cases interim relief sought has have been denied, which include a case related with tech firm in form of a taxi aggregator. In the latter case involving predatory pricing,¹⁴¹³ the CCI (the order dated 3 Sept 2015) denied interim relief to the applicant (a radio taxi operator) on the ground that the applicants did not prove that the loss, which has occurred or would occur, would be irreparable and that the balance of convenience was in their favor.

Article 49C of the **South African Competition Act** sets forth that a complainant can apply to the Competition Tribunal for an interim order (relief) in respect of the alleged prohibited practice. Thus, the powers to impose interim measures are reserved to the specialized court, not to the Competition Commission. Notably, the Competition Commission does not have a right to initiate interim order procedures, which is reserved exclusively to the complainant.¹⁴¹⁴ The remedy of interim relief is only available in instances of practices prohibited under Chapter 2, like price fixing, implying that the remedy is not available in merger proceedings. Section 49C of the Competition Act gives the Competition Tribunal authority to grant an interim order to a complainant, if the requirements of section 49C(2) are met, pending the final determination of the applicant's complaint filed with the Competition Commission (but no longer than 12 month in total).

The Competition Tribunal has dismissed many interim relief applications. Among the cases where the interim relief has been granted is *Directory Solutions v Trudon* (2010).¹⁴¹⁵ In this case, the Competition Tribunal applied balancing exercise and granted interim relief based on the fact that the continuous antitrust violation can harm not only to complainant, but also third parties (the complainant's customers) and that if the relief is granted, the defendant (Trudon) will suffer no business disruption.¹⁴¹⁶

In **China**, there are no interim measures provided by law to Chinese regulators in conducting investigation procedures. In private litigations, plaintiffs are entitled to seek injunction reliefs or TROs under general civil procedure law provided the urgency and necessity were proved before a court. However, there is no such precedents in competition cases.

In all the above jurisdictions, where the interim measures are allowed for competition authorities or courts, their scope seems quite broad, as they primarily seek to 'neutral-

1412 See *M/s Nuziveedu Seeds Limited et al vs. Mahyco Monsanto Biotech (India) Limited (MMBL) et al* (Case No. 107/ 2015); *Confederation of Real Estate Developers Association of India-NCR vs. Department of Town and Country Planning, Government of Haryana and Haryana Urban Development Authority* (Case No. 40 of 2017) and *Indian National Shipowners' Association vs. Oil and Natural Gas Corporation Limited* (Case No. 01 of 2018).

1413 *Fast Track Call Cab vs. ANI Technologies* (Case No. 6 of 2015).

1414 For the overview see P. S. Munyai, 'Interim Relief Jurisprudence in South African Competition Law : A Critical Review of The Competition Tribunal's Approach' (Jan 2011) Volume 23, Issue 3 SA Mercantile Law Journal p. 432 – 447.

1415 See Case No. 77/IR/Nov09 *Directory Solutions v Trudon*, South Africa (2010).

1416 *ibid*, para 56 and 58.

ize' the anticompetitive conduct and prevent significant or irreparable damage to the applicant. Such measures might include: banning the undertaking involved from committing specific actions that restrict or distort competition;¹⁴¹⁷ performing the positive actions;¹⁴¹⁸ even appointing an independent administrator to run the business of an undertaking involved in a cartel (in the Brazil fuel cartel case an 'interim administrator' has been appointed to manage the gas stations owned by cartelists and set their prices without co-ordinating with other competitors).¹⁴¹⁹

5.4.1.3.2. Commitments Decisions

Commitment decisions are broadly applied by **Brazil** CADE in conduct cases ('cease-and-desist commitment')¹⁴²⁰ and within merger control (Merger Control Agreements or ACC).¹⁴²¹ They involve structural or behavioural commitments and, in practice, are usually negotiated between the parties and the Competition Tribunal rather than unilaterally imposed by the latter.¹⁴²² One of the examples of merger commitments with digital aspect is the merger between Itaú Unibanco and Mastercard (in the form of joint venture) for the creation of a new debit and credit card flag which aimed, *inter alia*, at introducing new technologies in the payment market.¹⁴²³ The commitments agreed involved creation of the new brand for the payment card, reduced duration of JV and creation of corporate governance rules.

The tool of commitment decisions does not formally exist **in Russia**.¹⁴²⁴ However, undertakings can settle their disputes with FAS during the court procedures according to Chapter 15 of the Arbitration Procedure Code of the Russian Federation. These settlement agreements often contain provisions on certain commitments of economic entities, for example, to inform FAS Russia on price changes, to ensure non-discriminatory conditions in contracts, etc.¹⁴²⁵ With regard to digital cases, the only example that could be considered as a commitment decision in the context of merger control is the pre-

1417 See *M/s Nuziveedu Seeds Limited et al vs. Mahyco Monsanto Biotech (India) Limited (MMBL) et al* (Case No. 107/ 2015): prohibition to enforce the post termination obligations that require Informants to destroy the seeds, parent-lines and germplasm, which are modified to contain the technology of the Opposite Parties.

1418 See Case No. 77/IR/Nov09 *Directory Solutions v Trudon*, South Africa (2010) where the tribunal obliged the defendant to accept from complainant without a requirement for the upfront payment certain entries to the telephone directories owned by the defendant.

1419 OECD (2019).

1420 Law 12,529 (2011), Article 85.

1421 Law 12,529 (2011), Article 9, V and 13, X.

1422 <https://globalcompetitionreview.com/insight/the-antitrust-review-of-the-americas-2019/1173676/brazil-merger-control> (last accessed August 28, 2019).

1423 'Cade approves, with restrictions, joint venture between Itaú Unibanco and Mastercard' (12 May 2016), available at <http://en.cade.gov.br/press-releases/cade-approves-with-restrictions-joint-venture-between-itaun-unibanco-and-mastercard> (last accessed August 28, 2019).. Merger File No. 08700.009363/2015-10, Decision on 11 May 2016, Reporting Commissioner Paulo Burnier.

1424 See the Note of Russian Federation in 'Commitment Decisions in Antitrust Cases' (OECD, Round table, June 2016) <https://www.oecd.org/daf/competition/commitment-decisions-in-antitrust-cases.htm> (last accessed 23 August 2019).

1425 Ibid, para 17.

liminary decision of FAS of Russia on Bayer/Monsanto deal (dated November 8, 2017), prescribing to the parties to conclude the agreement with the Center for Transfer of Technologies in order to receive the approval of the deal by FAS Russia.

Section 49D(1) of the **South African** Competition Act provides that, if the Competition Commission and a respondent “agree on the terms of an appropriate order,” the Competition Tribunal may confirm the agreement as a consent order. Unlike interim relief, a consent order is generally issued after the Commission has completed an investigation, as it has to address adequately the anticompetitive conduct and be ‘as close as possible to that it would have achieved upon a successful prosecution of the matter in the [Competition] Tribunal’.¹⁴²⁶ The statistics shows that most cases are resolved by Commission through consent orders,¹⁴²⁷ which makes it far more popular measure than interim relief. Some notable examples of consent orders include Telkom consent order (internet services),¹⁴²⁸ Pioneer Foods consent order (bread),¹⁴²⁹ Sasol divestiture consent order (fertilizers).¹⁴³⁰

In **China** commitments are used in both conduct violations (for example, in cartel cases in exchange of leniency) or within the merger control. Authorities also sometimes request for upfront buyer or fix it first remedies to cure competition concerns before issuing clearances. On 04 December 2014 MOFCOM (currently the State Administration for Market Regulation) issued the Interim Regulations on Imposing Restrictive Conditions on Concentrations of Undertakings (Remedies Regulations) that set out the process for negotiation and determination of remedies.¹⁴³¹ Some example of cases include LCD Panel cartel case (behavioural commitment),¹⁴³² InterDigital abuse of dominance case (behavioural commitments with respect to the licensing of the patent portfolio),¹⁴³³ and Rockwell Collins/UTC merger (both structural and conduct commitments).¹⁴³⁴

Our understanding is that in **India**, commitment decisions are not provided for under the competition regime.

Conclusions: Competition authorities around the world are considering updating their tool boxes for instruments to deal with the rapid, dynamic nature of digital markets. Interim measures are being considered for playing a more important role to limit the harm to competition until competition authorities can conclude their lengthy investiga-

1426 See the Note of South Africa in “Commitment Decisions in Antitrust Cases’ (OECD, Round table, June 2016) para 5, <https://www.oecd.org/daf/competition/commitment-decisions-in-antitrust-cases.htm> (last accessed 23 August 2019).

1427 Ibid, para 7.

1428 Competition Commission v Telkom SA SOC Limited (016865 or 55/CR/Jul09, 73/CR/Oct09, 78/CR/Nov09).

1429 Competition Commission v Pioneer Foods (Pty) Ltd (10/CR/Mar10, 15/CR/Feb07) [2010] ZACT 9 (3 February 2010).

1430 Competition Commission v Sasol Chemical Industries (Pty) Ltd (31/CR/May05) and Competition Commission v Sasol Chemical Industries (Pty) Ltd, Kynoch Fertiliser (Pty) Ltd, African Explosives and Chemical Industries Ltd (45/CR/May06).

1431 See Slaughter and May ‘Competition Law in China’ (2016) p. 6.27 <https://www.slaughterandmay.com/media/879862/competition-law-in-china.pdf>. (last accessed 23 August 2019).

1432 ibid p.5.

1433 ibid para 5.13.

1434 D. Polk, ‘China Antitrust Review 2018’ (January 2019) https://www.davispolk.com/files/2019-01-31_china_antitrust_review_2018.pdf. (last accessed 23 August 2019).

tions in these complex markets. Although interim measures are available in all jurisdictions reviewed, their use and application are rare. This may be due to, among other things, the high evidentiary burden that needs to be met for an interim measure to succeed where the competition authority has to prove at least *prima facie* an antitrust violation and substantial/irreversible damages. In instances where the threshold is lower, France is a case in point, interim measures are being used more frequently nevertheless without jeopardizing procedural fairness requirements (see Annex 4 on interim measures in selected jurisdictions).

Commitment decisions seem far more popular tools among competition authorities. This may be due to the willingness of undertakings to enter into commitment agreements with NCAs in exchange for exculpation from antitrust violation or merger clearance. Nonetheless, expanding the use of this tool has its own set of problems such as its impact on deterrence, the risk of increasing the monitoring duties for NCAs and the risk of hindering the development of legal precedent, which is a very relevant risk for young competition regimes and in particular for new issues arising out of the digital revolution, for which there is need for guidance.

Competition authorities should consider utilizing interim measures and commitment decisions in the digital economy, both instruments playing a complementary role. Interim measures may be used within a revised framework with lower thresholds but this should only be reserved for complicated and lengthy investigations where there is risk of irreversible harm to competition (markets may tip), and this should apply to the most harmful violations, such as cartels and abuse of dominance. Commitment decisions may be utilized to address less serious violations where it is also beneficial to the competition authority to reach a swift resolution, which would save it time and resources for more serious issues and will avoid market tipping. In any case, the practice of the authority should be clarified in secondary instruments such as guidelines for predictability and transparency purposes.

5.4.2. Towards a different model of competition law remedies

5.4.2.1. Competition law remedies for a complex economy

The concept of ‘effective’ remedies does not entail the power to impose *any* remedy¹⁴³⁵. It is closely interrelated to the question of the remedial discretion of competition authorities and the judiciary in competition law cases. It is generally argued that competition law remedies are adopted with the principal aim to restore competition in the market. This objective may be conceived broadly as including first the ‘micro’ goals of putting the infringement to an end, curing the particular problem as to competition, but

1435 For a detailed discussion see, I. Lianos, Effective Competition Law Remedies. In Ph. Lowe, G. Monti, M. Marquis (Eds.), *European Competition Law Annual 2013* (Hart Publishing, 2016), 105 ; I. Lianos, Competition law remedies in Europe: Which Limits for Remedial Discretion?. In I. Lianos, & D. Geradin (Eds.), *Handbook in EU Competition Law: Enforcement and Procedure* (Edward Elgar, 2013), 362.

also the ‘macro’ goal of putting incentives in place, so as to minimize the recurrence of just such anti-competitive conduct (preventive remedies or remedies aiming at deterrence). Competition law remedies may therefore have a prophylactic (preventive) aim. They seek to ensure that there remain no practices likely to result in distortions of competition and infringements in the future. This is particularly important in the context of the fast moving digital economy where enforcement activity focuses on the possible/likely effects of the anticompetitive conduct on the future market structure, innovation and therefore future consumer harm.

In the traditional private law adjudication process, rights (or wrongs) are linked definitionally and logically to remedies. One of the principal functions of remedies is to replicate the content of the pre-existing right that has been violated. This also applies to transformative remedies (remedies transforming the right that has been violated), which also require some form of functional linkage between remedies and rights, the latter one being an implication of the principles of corrective justice and correlativity in private law adjudication. In contrast, public law process-based approaches, such as structural reform theories, challenge the fit between right (or wrong) and remedy. In this context, the linkage between remedies and rights (or wrongs) is instrumental, as the liability stage indirectly constraints the targets of the remedial process, whose aim is to provide a solution to a specifically determined (at the liability stage) *problem*. The normative parameters that have been set at the liability stage *in the form of problems* that the remedy must address operate at the same time as a guide and as a constraint to the exercise of remedial discretion in a public law context. Hence, the remedial discretion of the decision-maker, from a public law perspective, will very much depend on the way the competition law problem is initially framed. For instance, if the competition law problem is defined as market tipping resulting from the bundling practices of a dominant undertaking, this may offer a significant discretion to the competition authority to act so as to reverse the situation of market tipping, eventually by ordering the divestiture of assets (e.g. data, algorithms, human resources, IP rights) that may have significantly contributed to the outcome of market tipping. This of course raises difficult questions as to how much of this market tipping results directly from the conduct that has been found to constitute a restriction of competition, and how to deal with situations in which the market tipping may have indirectly resulted from the specific conduct, for instance in situations in which the conduct contributed to the triggering of a process that led to market tipping.

Remedies may also have a pure prophylactic function to the extent that they affect the ability (and not the incentive) of the infringers to commit equivalent anti-competitive practices in the future by focusing on specific *facilitators* of potential infringements. These may not be illegal practices in themselves, but in the specific circumstances of the case, they may facilitate illegal conduct. By including in the remedial package the prohibition of these practices, the decision-maker’s objective is not to deter the potential infringers from adopting such conduct, as this is not illegal, but to reduce their ability to commit the illegal practices.

Decision-makers dispose of various trade-off devices in order to perform this search for appropriate – to the specific circumstances – remedies. One may adopt a simple means-end rationality test, which will consider if the remedial means chosen would indeed be a rational means to a purported remedial end. This may amount to a simple suitability test, which would provide the decision-maker with a lot of discretion in adopting a remedial package, but with the limitation that the remedies should be linked rationally with some limited remedial ends. Another possibility would be to assess the proportionality of the remedial action. This trade-off device would inquire whether the means are proportionate to the remedial ends. This exercise will involve in addition to considering if the means chosen are indeed a rational means to a purported end (step 1 of the test), some assessment of the possible excessive costs of the remedial action in relation to its benefits (step 2) and whether the means chosen are the least restrictive to the affected interests' alternative (step 3). The last operation inquires whether there is a less restrictive (to the affected interests) reasonably available alternative to accomplish the same remedial end. Finally, we can regroup under the broad category of cost-benefit analysis a balancing test that attempts to measure the costs and benefits of a remedial option or of alternative remedial options, before choosing the most appropriate one. Here there is less discretion.

In view of the influence of economics in competition law enforcement, the definition of what is 'optimal' or 'appropriate' may be influenced by the view economists have on optimal deterrence (the optimal deterrence model) and on how the market equilibrium existing prior to the competition wrong may be improved by subsequent remedial action. The remedy may thus offer the opportunity to select a new market equilibrium, more competitive than the one following the infringement, but also, in some circumstances, more competitive than the one existing prior to the infringement. This understanding of 'optimal' remedies seems in conflict with the dominant views in both public and private law on the purpose and the scope of remedial action. What is more important in an economically-oriented competition law is the fit between the remedy and the theory of harm advanced in the specific case. However, if the principle of proportionality requires a close fit between the harm and the remedy, determining the nature of that fit (functional, instrumental) is crucial as to the possibility of adopting prophylactic remedies.

This is not always an easy thing because of the inherent uncertainty in some economic theories of harm. For instance, one may take the example of a leveraging theory of harm, which has been perceived by some as problematic only if the transfer of power from one market to another establishes two monopolies that generate more monopoly profits than a single monopoly (so the single monopoly profit does not apply in the specific case), thus resulting in economic damage (reduction of output). However, in the digital economy, the motivation behind monopoly leveraging activities may be a reduction in competition over time, rather than in order to achieve an immediate or medium-term profit in product markets, if one embraces a dynamic theory of market foreclosure that also takes into account the way leveraging may affect the market evaluation of the company by financial markets. Many large firms are more intent on maximizing their

total output, sales, or growth rates in order develop network and learning effects, or increasing returns to scale, that are highly valued by financial markets, rather than in order to increase their profits short-term in product markets. Hence, defining the competition law problem as leveraging does not provide us information on the limits of remedial discretion as such, because of the different meanings this doctrine may take and the different ways the competition problem identified can be framed.

At a more abstract level, traditionally competition law is perceived as adopting a business tort law model in which the competition problem identified is somehow causally linked to a conduct, or conducts, found to constitute a competition law 'wrong'. This conceptualisation may easily hold in the context of a competition law focusing on the simple economics focusing on the effects of a specific conduct on a relevant market, but one may raise questions if it still holds in the context of the complex economics of the digital era. Applying competition law problems only to deal with harm identified in a specific relevant market may be criticised as 'standing under the streetlight': it certainly shines light, but not where we should be looking at. One may give the example of competition law infringements in multi-sided markets settings, where the remedy may have unintended consequences at the other sides of the market. The inadequacy of the current conceptualisation of competition law remedies and of the business tort model of competition law becomes clearer if one realises that the digital economy is forms a complex system where different autonomous components interact, and where the outcome of that system is not simply the sum of the underlying parts but is characterised by linearity in the way the elements of this complex system give rise to overall patterns of emerging behaviour. Indeed, these systems are characterised by increasing returns to scale and network effects, path dependence, feedback processes, leverage points, tipping points. Enforcing competition law in a complex economy requires some wider remedial discretion. This will still be framed by the competition law problem identified, if one is to stay within the scope of the business tort competition law enforcement model. However, it should also aim to remedy the indirect or likely effects the anticompetitive conduct may have contributed to in realizing. The measure of the causal link required is of course an issue for discussion. One may refer to the quite simplistic model of the counterfactual reasoning that will enable the decision-maker to build a counterfactual dependence between the world with the competition law violation and the world without it. Others may go further and refer to the structural equation models used in econometrics, which rely on complex mathematical terms that describe the agents' interactions to frame the discretion of competition authorities. Finally, one may refer to complex systems methodologies that visualise the links between the various agents, for instance through agent-based modelling, thus helping to determine the causal narrative for identifying the competition law problem that would limit the remedial discretion.

A complex economics perspective is not necessarily going to change the type of remedies, behavioural or structural, that may be adopted. It can, however, have important implications on the remedial strategy followed in specific cases. In conclusion, in view of the permanence of network effects, tipping effects and winner takes most competi-

tion in certain market configurations, it is difficult for the theory of harm, even narrowly defined, to serve as an adequate limit to remedial discretion. Most often, a competition law remedy adopted in such context may affect the way the specific economic sector or broader industry will develop in the years to come. Hence, the simple business tort model of competition law remedies may be inadequate and remedial discretion should be more significant. One may ask here the question of the institutional capability but also the checks and balances available in order to adopt remedies in such a context. Should we adopt more frequently structural remedies that would provide a more drastic solution to the immediate competition law problem? (see 5.6.2.2.). However, in markets with significant network effects it might be difficult to transform the competition game from competition *for* the market to competition *in* the market. Should we abandon the adjudicatory model and move towards a regulatory model or a structural adjudication model that would focus on the prevention of competition harm? (see 5.6.2.3.)

This is not of course a recent challenge for competition law. One may refer to some of the archetypical competition law cases regarding remedies, such as the IBM 1956 consent decree and the 1956 Bell System consent decree. These consent decrees, in particular the IBM one regulated the computer industry from 1956 until 1996, providing the opportunity for the development of the hardware and software sector in the U.S.

The IBM case provides a quite complex interplay of various remedies, of both behavioural and structural nature: prohibitions of bundling, FRAND terms, non-discrimination clauses, prohibition of restrictions of competition in aftermarkets. But more remarkably, an important feature of this remedial package adopted in this case was that seven years from the date of entry of the Final Judgment, IBM was ordered to divest itself of such part of its then existing capacity for the manufacture of tabulating cards as may then be in excess of 50% of the total capacity for the manufacture of tabulating cards in the U.S.. IBM was also prohibited from making any acquisition in related markets that would have enabled it to leverage its power in adjacent markets.

Almost similar remedies were imposed on January 24, 1956, by the Federal district court in New Jersey for the Bell System, the research subsidiary of AT&T and Western Electric, the vertically integrated monopolistic provider of telecommunication in the U.S., which was also ordered to license all its patents for free. This decree settled a 7-year old antitrust complaint that sought to break-up the Bell System. As a consequence of the consent decree, 7,820 patents or 1.3% of all unexpired US patents became freely available to all U.S. companies. Most of these patents covered technologies from the Bell Laboratories, the research subsidiary of the Bell System, which was arguably the most innovative industrial laboratory in the world at the time. Researchers at Bell Labs were responsible for ground-breaking innovations, such as the transistor, the solar cell, and the basis of the cellular phone technology. The decree also barred the Bell System from engaging in any business other than telecommunication. This led to an important diffusion of innovation. Recent economic research by Watzinger et al. has found that compulsory licensing predominately increased innovation by start-ups¹⁴³⁶. More than

1436 M. Watzinger, T. Fackler, M. Nagler, M. Schnitzer, How Antitrust Enforcement Can Spur Innovation: Bell Labs and the

two thirds of the increase in follow on innovation after compulsory licensing was driven by young and small companies and individual inventors unrelated to Bell. According to the same research, start-ups and individual inventors increased follow-on innovation by 20% while for large and old companies the increase was only around 5%¹⁴³⁷. The consent decree also led to a decrease in patenting by the Bell System, but this effect was not large enough to dominate the increase of patenting of other companies¹⁴³⁸. Furthermore, Bell shifted its research program to concentrate more on communication research, the only business Bell was allowed to be active in. However, the same economic research also notes that as Bell was not subject to structural remedies it was able to effectively exclude competitors in telecommunication because it controlled not only the production of telephone equipment but was – in the form of the Bell operating companies – also its own customer¹⁴³⁹. This was noted by the Sub-Committee on Antitrust of the US Congress, which heavily criticised the Bell decree¹⁴⁴⁰. The research concluded that foreclosure decreases innovation and that compulsory licensing is not sufficient without the adoption of supporting structural remedies. Hence, it seems that access to technology through compulsory licensing alone does not stimulate market entry and innovation, unless there is sufficient access to the product market as well.

What is remarkable in these cases is the importance that the future development of the industry played in the design of appropriate remedies and the impact it exercised on the future development of the industry. Because of network effects and path dependence, competition law remedies played an important role in opening a number of markets to competition and allowing start-ups to develop, beyond looking to the simple effects these remedies had on the consumers of the relevant market. May be these cases could provide some interesting insights on an adequate way to think about competition law remedies, that would take into account the polycentric dimension of competition law in a complex economy. They may also reinforce our conclusion in Chapter 4 that competition law remedies should be integrated in a broader framework of institutional action on digital markets (the toolkit approach).

5.4.2.2. The use of structural remedies and break ups: the past as present

Breaking up the big digital platforms has been a topic of fierce discussion in recent years. This is not the first time that structural remedies, such as a break up, have been considered as the appropriate competition law remedies. The two archetypical cases

1956 Consent Decree (February 27, 2017). CESifo Working Paper Series No. 6351. Available at SSRN: <https://ssrn.com/abstract=2938960>.

1437 Ibid.

1438 Ibid.

1439 Ibid.

1440 Ibid (noting that the final report of the Committee issued in 1959 ‘pulled the decree to pieces’. As it is observed in the Congress’ report, ‘the consent decree entered in the A. T. & T. case stands revealed as devoid of merit and ineffective as an instrument to accomplish the purposes of the antitrust laws. The decree not only permits continued control by A. T. & T. of Western, it fails to limit Western’s role as the exclusive supplier of equipment to the Bell System, thereby continuing monopoly in the telephone equipment manufacturing industry’).

are the break up of AT&T in 1956 and the attempted break-up of Microsoft in the early 2000s. While there is a widespread agreement that the break-up of AT&T was a quite successful remedy that brought overwhelmingly positive results, there has not been a consensus as to the envisaged break-up of Microsoft. The choice of a structural remedy therefore depends on a careful cost benefit analysis, not only of the competition law problem the remedy aims to cure, but also of the internal organisation, governance and characteristics of the undertaking in question.

The seminal case for a break-up imposed by antitrust law is AT&T. The company was divided into the long-distance company (AT&T), and seven regional operating companies, each of which remained a regulated local telecommunications monopoly until 1996. The destruction of AT&T's long-distance monopoly encouraged competition, which brought sharply lower prices and immense consumer benefits¹⁴⁴¹.

In *US v. Microsoft*, Judge Jackson adopted the plaintiff's remedies proposal and imposed a breakup of Microsoft into two 'Baby Bills'¹⁴⁴² an operating systems company which would inherit all the operating systems software, and an 'applications' company with all the remaining software assets. Cash and securities holdings of other companies held by Microsoft would be split between the resulting entities. Bill Gates and other officers of the company would not be allowed to hold executive and ownership positions in both of the resulting companies.

In arguing for the break-up, the government (and the judge) put forward a number of reasons. 1. That they considered the repeated violations of antitrust law by Microsoft as an indication that Microsoft would not follow any conduct or contractual restrictions; in fact, in some informal remarks, government officials believe that they were "tricked" by Microsoft in settling the 1995 case with terms that Microsoft was able to exploit; 2. That the lack of remorse by Microsoft's executives was a clear indication that Microsoft "could not be trusted" to implement any other remedy; 3. That the breakup was a "surgical cut" that would create the least interference with business; 4. AT&T and the rest of the telecommunications industry benefited from AT&T's breakup, and so should Microsoft and the software industry; after all both industries have network effects; 5. The breakup would eliminate the incentive for vertical foreclosure; and 6. The breakup would reduce the "applications barrier to entry" since now the applications company might write popular Microsoft applications (such as MSOffice) for other platforms. The government failed to show that the proposed (and later abandoned) breakup was the appropriate remedy. None of the affidavits in the remedies phase even approach a discussion on evaluating alternatives. Additionally, a few weeks before Judge Jackson's decision, under the supervision of Judge Posner the government and Microsoft had reached a compromise that imposed only conduct remedies.

1441 See the assessment of M. Watzinger, T.A. Fackler, M. Nagler, & M. Schnitzer, How Antitrust Enforcement can Spur Innovation: Bell Labs and the 1956 Consent Decree, (January 2017). CEPR Discussion Paper No. DP11793, available at SSRN: <https://ssrn.com/abstract=2904315>.

1442 This is a word play on "Baby Bells" that came out of AT&T and the first name of the co-founder and then CEO of Microsoft, Bill Gates.

There are a number of key differences between the two companies and their competitive situations. These differences make it likely that a Microsoft breakup, besides harming Microsoft, would have harmed consumers and the computer industry. In 1981, AT&T was a 100-year-old regulated monopoly with many layers of management. For historical reasons, the local phone companies within the old AT&T, such as New York Telephone, were managed separately from the “long lines” division. Thus, it was not difficult to separate the divisions since they functioned on many levels as separate companies. AT&T also had an abundance of managers to help cope with the breakup. By contrast, Microsoft was at the time a young, entrepreneurial company run by few top executives, and its divisions were fluid. During the 1980s (the first decade of its existence) its growth was mainly organic, M&A activity intensifying from 1994 and on (and really in the 2000s), as Microsoft since its foundation has acquired around 200 companies, in average 6 companies per year on different sectors of the ICT business, with 178 of these acquisitions being made after 1992¹⁴⁴³. This means that a break-up would have posed significant managerial problems and would have severely reduced the company’s flexibility. Finally, AT&T was a regulated utility, and regulation guaranteed that the companies emerging from the breakup stayed interconnected. In contrast, the Microsoft breakup would have likely led to incompatibilities and further loss of efficiency. USDOJ’s two-way breakup plan was premised on the hope that an autonomous applications company would create a new operating system to compete with Windows. But at trial it was stipulated that more than 70,000 applications run on Windows, creating what the government called “the applications barrier to entry” in the operating-system market. The new applications company, however capable, seemed unlikely to be able to singlehandedly create a successful rival operating system in short order.

The breakup of Microsoft, first proposed by the government, imposed by Judge Jackson, and, after the DC Court of Appeals decision not pursued by the government, would have had detrimental effects. First, the breakup was likely to result in higher prices. If USDOJ was correct and Microsoft kept its OS prices low so that it can exercise its monopoly power in the adjacent browser market, the post-breakup Baby Bill that would inherit the operating system would have no incentive to keep the price low. The OS Baby Bill would no longer have the incentive to disadvantage any applications companies. Thus, if USDOJ’s theories were correct, the OS Baby Bill would exercise its monopoly power and raise the price of the operating system to the detriment of consumers. If USDOJ was correct and Microsoft had significant monopoly power because of the “applications barrier to entry,” higher prices would be the direct result of the breakup. Second, as explained earlier, the breakup would likely eliminate the efficiencies that made Microsoft a flexible and formidable competitor. A breakup would likely temporarily eliminate the incentive for interference from OSs to applications and vice versa. Of course, the same can and has been accomplished by conduct restrictions without the cost and the disruption of

1443 See the discussion in A. J. Lopez Giron & P. Vialle, A preliminary analysis of mergers and acquisitions by Microsoft from 1992 to 2016: a resource and competence perspective, 28th European Regional Conference of the International Telecommunications Society (ITS): «Competition and Regulation in the Information Age», Passau, Germany, July 30 – August 2, 2017, available at <https://www.econstor.eu/bitstream/10419/169462/1/Giron-Vialle.pdf>.

a breakup. Moreover, the district court's breakup proposal did not impose permanent restrictions on the post-breakup functions of the resulting companies. The OS and the applications Baby Bills would have been able to enter into each other's business soon after the breakup. It is very likely that a few years after such a breakup, one of the resulting companies would dominate both markets in view of the network effects.

In exploring the possibility of a break-up one needs to take into account the fact that digital markets increase the risk and costs of abuses, as platforms are critical innovation catalysts to economies and conduct remedies do not adequately address the problem¹⁴⁴⁴. The cost of type I and type II errors is also relatively more complex in the digital economy, because of the important cascade effects and the possible impact on innovation that market tipping may generate¹⁴⁴⁵. Hence, the usual caution of competition authorities for committing type I errors (false positives) is not warranted.

Each of the Big Tech that have been at the centre of attention, such as Google, Apple, Facebook, Amazon, Microsoft, Alibaba, Baidu, Tencent, JD.com, presents proper characteristics and has a distinctive history, and from this perspective one should not venture in providing broad recommendations that would apply to all. One of the main concerns put forward by those asking for a structural separation is that platforms should be prohibited from taking advantage of their dual role as platforms/marketplace operators and also presence in markets more 'open' to competition.

In a recent paper Lina Khan argues that Amazon exploits a dual role as marketplace operator and merchant by instituting policies that benefit Amazon when it sells products, for example, securing greater control over brands and pricing. Amazon additionally appropriates information related to sales of merchants' products. With regard to the first category of abuse, Amazon takes the default position in product lists even when other goods sell at lower prices. The default position accounts for almost 82 percent of Amazon sales¹⁴⁴⁶. For the second category, Amazon can incorporate into its operations information beyond sales. The information may relate to clicks, or how price changes, product images, and videos altered consumers' response to listings¹⁴⁴⁷. The information gleaned from Alexa also affects product strategy. To build an ecosystem around Alexa,

1444 See, inter alia, L. M. Khan, *The Separation of Platforms and Commerce*, (2019) 119 Columbia L. Rev. 973.

1445 The issue is discussed in great detail in the J. Cr  mer Y.-A. de Montjoye & H. Schweitzer, *Competition Policy for the Digital Era* (Final Report, OPOCE, 2019), available at <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>) (hereinafter European panel of experts Report), 4 & 50-52, which concludes (at 5), ' The specific characteristics of many digital markets have arguably changed the balance of error cost and implementation costs, such that some modifications of the established tests, including allocation of the burden of proof and definition of the standard of proof, may be called for. In particular, in the context of highly concentrated markets characterised by strong network effects and high barriers to entry (i.e. not easily corrected by markets themselves), one may want to err on the side of disallowing potentially anticompetitive conducts, and impose on the incumbent the burden of proof for showing the pro-competitiveness of its conduct. This may be true especially where dominant platforms try to expand into neighbouring markets, thereby growing into digital ecosystems, which become ever more difficult for users to leave'. We agree with these conclusions.

1446 L. M. Khan, *The Separation of Platforms and Commerce*, (2019) 119 Columbia L. Rev. 973, 987-988. (Third party vendors still account for over 50 percent of sales on Amazon).

1447 Ibid., 992.

Amazon created a \$100 million fund to sponsor voice-technology startups. Khan says that Amazon uses the fund as cover to steal product ideas¹⁴⁴⁸. Alexa further selects Amazon skills as the default choice¹⁴⁴⁹.

Turning to Alphabet, Khan writes that Google accounts for all of Alphabet's operating income, \$36.5 billion in 2018, and that U.S. consumers use Google for 88 percent of searches, and 95 percent of mobile searches¹⁴⁵⁰. She focused on discussing the 2011 FTC investigation of Google, which considered whether Google privileged its own sites. It also evaluated whether Google scraped information from third-party websites to enhance the quality of its vertical sites. Utilizing contract terms to effectuate this act, Google coerced website publishers to agree to license agreements that granted Google access to their data feeds. To appear within search results, third-parties had to agree to the terms. FTC staff concluded that the scraping practice inhibited incentives to invest in, and create, valuable content. The Commissioners nevertheless settled¹⁴⁵¹.

Next is Facebook. Khan isolates the abuse as appropriating information, and she identifies the following victims who both rely on Facebook's platform while competing against Facebook: application developers and online publishers¹⁴⁵². Concerning developers, Facebook basically excludes apps that it decides to manufacture. It has written a platform policy that prevents developers from utilizing its APIs to support a product that Facebook considers "core" to its platform. Voxer experienced this purported abuse¹⁴⁵³. Concerning publishers, they need access to Facebook users to make advertising more attractive. Facebook sells to the same advertisers, and it can appropriate information about the publisher's readers to sell advertising directed at the same readers at a fraction of the price that the publisher charges¹⁴⁵⁴.

In mentioning Apple, Khan looks primarily to Spotify's EU complaint. Spotify states that Apple charges it a 30 percent fee for in-app purchases, but Apple levies the fee selectively. Apps that Apple manufactures and apps that do not compete directly with Apple, for instance, Uber, do not need to pay the fee. Beyond price, Spotify complains that Apple does not permit it to communicate or market services directly to Apple users. The third category relates to refusing apps access to the platform because they replicated functionality of core Apple apps. Apple removed a digital wellness app from its platform after introducing its own version¹⁴⁵⁵. The last category concerns a "release radar". Apple designed this technology to monitor apps that may threaten Apple's business interests¹⁴⁵⁶.

1448 Ibid., 994.

1449 Ibid., 995.

1450 Ibid., 996-997.

1451 Ibid., 998-999.

1452 Ibid., 1000.

1453 Ibid., 1001.

1454 Ibid., 1004.

1455 Ibid., 1005-1006.

1456 Ibid., 1006-1007.

Khan argues that competition law should prohibit market operators from vertically integrating and competing in separate markets¹⁴⁵⁷. Note that this was a remedy that has been successfully applied in the context of the AT&T consent decree in 1956, which had barred the company competing in industries other than telecommunications and imposed the company the obligation to license its patents to other companies at reasonable fees, spurring a wave of innovation in the development of ICT. Such an approach was also followed in IBM, which in contrast to AT&T was not a regulated monopoly. The company was banned from vertically integrating forward into the 'service bureau' business and sell the services for computers rather than computers themselves. Arguably, this ban may have helped in the emergence of a separate computer services industry, and the vertical specialisation of the computer software value chain, on the basis of a structured set of standards enabling the integration of multiple products and functionalities produced by firms in the various vertical layers of the industry¹⁴⁵⁸. Khan claims that until the 1970s, regulatory agencies did not permit dominant gatekeepers to compete with entities seeking access to the gatekeeper's facilities¹⁴⁵⁹ and, on this basis, argues for restrictions that prevent entry into adjacent markets, defined as involving 'a successive stage of production or distribution'¹⁴⁶⁰. Federal and state governments restricted line-of-business expansion utilizing a variety of methods, including corporate charters, regulatory regimes, and antitrust law. The provisions covered sectors both exhibiting monopoly power and sectors critical to an economy. Government oversight focused on ensuring reliability and non-discrimination. For further support, Khan refers to language in some old cases of the Supreme Court stating that vertical integration can 'clog' competition, preventing 'a fair opportunity to compete'.¹⁴⁶¹ Khan noted that the Supreme Court determined that only divestiture could remedy the harm that the acquisition caused. In digital markets, she highlights the entry barriers of network effects and unequal access to data¹⁴⁶².

Such remedy eliminates the incentive of the platforms to commit an abuse, the functional goal for such remedy being not only economic efficiency or consumer welfare gains (as narrowly or broadly these are defined) but also broader considerations of fair competition and system resilience, media diversity, and administrability of the system. Some of these goals are linked to welfare economics but several other serve broader objectives¹⁴⁶³.

However, the dual role of platforms does not exhaust the concerns expressed by the proponents of a break-up. Indeed, in addition to acquiring nascent rivals, which may

1457 L. M. Khan, *The Separation of Platforms and Commerce*, (2019) 119 *Columbia L. Rev.* 973, 980-81.

1458 T.F. Bresnahan, *New Modes of Competition: Implications for the Future Structure of the Computer Industry*, in J.A. Eisenach & T.M. Lenard, *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace* (Springer, 1999), 155, 195.

1459 L. M. Khan, *The Separation of Platforms and Commerce*, (2019) 119 *Columbia L. Rev.* 973, 1013-1014.

1460 *Ibid.*, 1014.

1461 *Ibid.*, fn.261 (*Brown Shoe Co. v. United States*, 370 U.S. 294, 323-24 (1962) (quoting *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293 (1949))).

1462 *Ibid.*, 1023.

1463 *Ibid.*, 981.

be a concern that could be addressed pre-emptively by reinforcing the standards of intervention of merger control for reasons of preservation of potential competition, the intensity of M&A transactions led by the platforms prevents investment and innovation. Despite the scale of venture capital funding, recently surpassing \$100 billion for the first time since the dot-com era, the number of angel investments has fallen since 2015. Start-ups have lower chances of acquiring initial financing¹⁴⁶⁴. Khan sites anecdotal evidence that investors have little desire to risk money on firms competing with a “core functionality” of Google, Facebook, or Amazon¹⁴⁶⁵. In a vertical platform context, Khan defines harm to competition as platform conduct that “reduces investment and entrepreneurial activity by independent parties,” causing loss to innovation¹⁴⁶⁶.

To guide “platform policy” and enforcement, Khan sees value in promoting network neutrality and common carriage principles as supporting innovation¹⁴⁶⁷. The Internet Protocol enables developers at a network’s edge to design new services without needing to seek permission from network operators. The protocol itself derives from common carriage principles, which mandate that regulated entities treat equally situated parties in the same manner. At its core, common carriage promotes nondiscriminatory public access and indifference to the goods that an infrastructure carries¹⁴⁶⁸.

This support for a structural remedy may also be linked to the relatively strict US antitrust standard for discriminatory refusals to deal, under Section 2 of the Sherman Act. As *Trinko* requires the discriminatory refusal to deal to create a new monopoly or strengthen an existing one, this requirement drains the claim of any vitality¹⁴⁶⁹, and therefore leave a prohibition of vertical integration the only possible choice, if of course some other anticompetitive conduct may provide the opportunity to adopt antitrust law remedies. This is also essential as, according to Khan, there is a gap in the current US law, which generally does not support exclusionary conduct cases based on information appropriation, because of the evidentiary difficulty of showing anticompetitive effects in innovation terms, as the consumer welfare standard favours effects cognizable in price and output terms¹⁴⁷⁰. These are of course idiosyncratic characteristics of the U.S. antitrust regimes and may not be of relevance for other competition law regimes where the antitrust provisions against exclusionary conduct, in particular discriminatory refusals to deal and exclusionary discrimination, have more teeth. The EU competition law regime comes as an example.

With regard to the institutional setting of the separation regimes that may emerge, Khan explores those applied to railroads, bank holding companies, television networks, and telecommunication carriers and notes that agencies and courts implemented the re-

1464 Ibid. 1008. See also our analysis in Chapter 4.

1465 Ibid., 1010.

1466 Ibid., 1024.

1467 Ibid., 1011.

1468 Ibid., 1013.

1469 Ibid., 1027-28

1470 Ibid., 1029.

gimes twice by statute, twice by agency regulation, and once as an antitrust remedy¹⁴⁷¹.

To highlight the choice of a regulatory framework, she explores, among others, the separation regimes resulting from the enactment by Congress a hundred years ago of a “commodities clause” that prohibited railroads from carrying items that it had produced or in which it may have had any interest. The FCC instituted a similar provision against television networks by regulatory means, expressing concern about programming practices. The following two dynamics justified regulation in this case. First, the major networks offered access to nearly all viewers, from which they acquired monopsony power. That power enabled the networks to purchase programming on terms that materially disfavoured producers. Second, the FCC found that the networks also benefited from monopoly power that they exploited to refuse selling programs to independent stations, and to favor network affiliates by granting advantageous syndication rights. The harm that the FCC underlined related to limiting the number and variety of programs that the public could view, or curtailing program diversity. The FCC’s ultimate order structurally prevented the networks from entering the production and syndication markets¹⁴⁷².

Referring to another FCC investigation, Khan depicted similar provisions in the telecommunications field. Telecommunication carriers had sought to enter data processing, a move creating concern that they would utilize control over infrastructure to inhibit competitors in the data processing market. During the course of several proceedings, the FCC enforced degrees of separation between the two markets. At first, the regulated communication carriers could compete in the data processing market only by forming a separate subsidiary¹⁴⁷³. Later, the FCC altered its position from structural separation to mandating unbundling and equal access¹⁴⁷⁴.

Khan identifies six additional reasons justifying structural limits: (1) removing conflicts of interest, (2) protecting against cross-financing that would expand existing dominance, (3) maintaining system resiliency, (4) promoting diversity, (5) not allowing the growth of market power, and (6) advancing administrability¹⁴⁷⁵.

Relating to preserving system resiliency, Khan primarily points to the public interest in preserving stability and protecting against disruption to justify separation. Indeed, when a single system crashes, effects could cascade. Khan notes how, several years ago, a single outage at Amazon caused Netflix, Reddit, Business Insider, and several other websites ‘to crash for five hours’: Monoculture creates security vulnerabilities, increasing the incidence of malware or hacks¹⁴⁷⁶. Relating to diversity, separation promotes more vibrant competition between producers that serve to promote diversity¹⁴⁷⁷. Khan cited the Comcast-NBC merger, about which the government worried that Comcast might fa

1471 Ibid., 1034.

1472 Ibid., 1041.

1473 Ibid., 1043.

1474 Ibid., 1045.

1475 Ibid., 1049.

1476 Ibid., 1068-1069.

1477 Ibid., 1055.

your NBC programming. Khan stated that this concern has proved valid, since Comcast has discriminated against rival content¹⁴⁷⁸. Relating to prioritizing administrability, Khan noted a repeated concern by the FCC that parties harmed by a dominant undertaking infrequently will know when the harm has occurred. Structural remedies promote deterrence¹⁴⁷⁹.

Although structural separation may be an adequate remedy in the U.S. context, and we remain agnostic as to this issue, to the extent that a separation regime may affect a company whose main assets are overseas, this will raise important concerns, regarding international comity, and should these been non-influential factors in establishing prescriptive jurisdiction, may raise issues of enforceability of remedies, in particular for authorities of developing countries, unless some arrangement is reached. These concerns were examined in Section 5.4.2.2.

Assuming that such separation regimes were possible, this would call for the establishment a general framework for separating platforms and commerce. This broader regime may be put in place, with the view that some entities serve critical gatekeeper functions in the digital economy¹⁴⁸⁰. This would apply to platform businesses. Khan would define platforms by evaluating the following factors: (1) the extent an undertaking operates as a central exchange for transacting goods, (2) the extent an undertaking is necessary for productive uses downstream, and whether downstream entities can access substitutes, (3) the extent the undertaking acquires value from network effects and the type at stake, (4) the extent the undertaking operates as infrastructure for “customizable applications” by third parties, and (5) “the size, scope, scale, and interconnection of the company”¹⁴⁸¹.

Returning to broader points related to the six themes discussed previously, Khan highlights the unfairness of forcing consumers of regulated products to support entry into unregulated markets through cross financing. While acknowledging that dominant platforms do not rely on regulated rates, she expresses a parallel concern for utilizing supra-competitive profits to finance entry into a multiplicity of other markets¹⁴⁸².

There may be also other concerns, such as media diversity, that can be put forward in order to justify the imposition of a structural separation regime, the issue here being if this should be an antitrust concern, or if this should be imposed through some other sector-specific regulatory regime. For instance, Khan advances the policy of separating Facebook’s and Google’s communication networks from their advertising businesses, having previously stated that both platforms derive nearly all their revenue from advertising. Permitting the combination deprives publishers of ad revenue, and society should protect the news media¹⁴⁸³.

1478 Ibid., 1057.

1479 Ibid., 1059.

1480 Ibid., 1061.

1481 Ibid., 1077.

1482 Ibid., 1063.

1483 Ibid., 1068.

To determine which carriers to separate, Khan approvingly cites the FCC's previous policy of looking to operating revenue¹⁴⁸⁴. The next step would involve identifying what qualifies as distinct products or services. Khan pointed to the *Jefferson Parrish* consumer-demand test as appropriate to evaluate distinct functionalities. Regulators would have the capacity to determine, over time, whether apps contributed to basic functionality, and whether the benefits of integrating features offset potential harms to innovation¹⁴⁸⁵. Khan admits a separation regime may "sacrifice certain cost savings, resulting in higher prices." Yet enforcement authorities can weigh losses in static efficiency against innovation benefits, just as they can weigh losses in platform innovation against increases in "complementor" innovation¹⁴⁸⁶. The main alternative to such proposal is a standalone non-discrimination regime, but in Khan's view, it risks ineffectiveness, and she claims the Google-Shopping case as an illustration of how a non-discrimination approach has not altered the underlying market dynamics¹⁴⁸⁷. Khan argues that there is an incentive for dominant platforms to exclude complementors when the act would enable it to price discriminate¹⁴⁸⁸. Referencing another economic factor separating digital platforms, in this case Google, preferring its own sites help lock users within its ecosystem, permitting Google to secure more data and sell more ads at higher prices¹⁴⁸⁹.

Such proposals have of course to be assessed with caution and, as we explained above, need to be properly evaluated with regard to the characteristics, organisation and history of each specific undertaking that may be subject to such drastic remedies. It also raises questions as to the appropriate institutional setting for imposing such a remedy, and the capacity of jurisdictions, developed or developing, to mandate the structural separation of undertakings with headquarters and productive assets in other jurisdictions, and in particular in jurisdictions with a significant political and economic clout. The risk that such remedies may be considered as motivated by protectionist intent, rather than by genuine competition law concerns, could be a factor that may lead to tensions and could backfire. In the absence of a global competition law regime, there is not much that can be done at this level, other than probably intensifying cooperation and the exchange of information between competition authorities and also between competition authorities and courts. An important issue is also if such remedies should be adopted by statute or rulemaking, or through remedies. For instance, the US FTC could act under Sect. 5 of the FTC Act to sketch a separation regime through rulemaking¹⁴⁹⁰. Such a possibility does not exist for competition authorities in all jurisdictions.

However, separation can take different forms and need not be structural. Some 'light-touch' separation may be achieved by policies mandating digital platforms not to use personal data that has been harvested by the members of their ecosystems unless they

1484 Ibid., 1077.

1485 Ibid., 1077-1078.

1486 Ibid., 1080-1081.

1487 Ibid., 1083-1084.

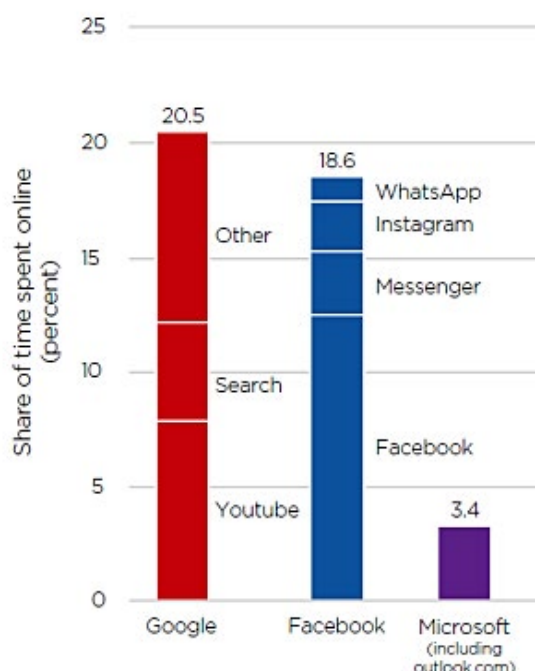
1488 Ibid., 1090-1091.

1489 Ibid., 1091.

1490 Ibid., 1078.

have the explicit consent by their users, or to ensure that more protective to privacy personal data policies of companies that have been acquired by a large digital platform stay, even after the acquisition, and are not replaced by the less privacy-oriented policies of the acquirer. This 'data separation' may be for instance quite easily implemented and could reduce the data advantage that some platforms have in view of the time people spend on their various ecosystems (see Chart 5.1.). If one looks carefully to the time spent with the dominant digital platforms' ecosystems, it appears that establishing barriers to the use of data across the various members of the ecosystem may provide reduce the barriers that new entrants because of the data advantage of the digital platforms, to the extent also that this advantage was not acquired through organic growth but through the acquisition of popular rivals that could have otherwise acted as competitive threats to the dominant position of the platform.

Chart 5.1. Time spent online in various ecosystems (Australia)



Source: ACCC, *Digital Platforms Inquiry – Final Report (June 2019)*, 513, available at <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report,6>

For instance, following the acquisition of WhatsApp from Facebook, in August 2016, WhatsApp updated its privacy policy to allow for linking WhatsApp users' phone numbers with Facebook users' identity. Hence, the previous statement at the time of the assessment of the merger was proven to have been misleading. Indeed, at the time the merger transaction was assessed, Facebook had offered assurances to the Commission, both in the notification form and in a reply to a request of information, that it would be unable to establish reliable automated matching between Facebook users' accounts and WhatsApp users' accounts. The Commission imposed a €110 million fine on Facebook for providing misleading information about the WhatsApp merger¹⁴⁹¹. Furthermore, by

¹⁴⁹¹ Facebook/ WhatsApp (Case COMP/ M.8228) Commission Decision (17 May 2017), available at http://ec.europa.eu/competition/mergers/cases/decisions/m8228_493_3.pdf.

decision of 6 February 2019, the German Federal Cartel Office (Bundeskartellamt) decided that Facebook will in future be prohibited from merging user and device-related data collected by its own services (Instagram, WhatsApp, Masquerade and Oculus) with the user's Facebook account without the user's voluntary consent. This also applies to data collected by Facebook Business Tools on third-party websites. Facebook's way of collection data with those services was held to constitute an abuse of exploitation in relation to the users as well as an exclusionary abuse in relation to the competitors violating § 19 para. 1 of the Act against Restraints of Competition (GWB).

5.4.2.3. Preventive structural adjudication

Remedial discretion is an instance of adjudication and, as such, it is subject to the inherent limits of adjudication, as a separate form of social ordering from those of contracts/negotiation, managerial/administrative discretion or legislation¹⁴⁹². Should remedial discretion move beyond the limits of adjudication and cross over the —territory of regulation or contractual governance, the decision-maker should adapt, by developing legitimacy-building tools that would emulate those used in the context of these other forms of social ordering. The participation in the remedial process of the interests affected constitutes an important source of legitimacy for managerial/administrative discretion. Consequently, if competition law remedies move closer to regulatory ones and therefore cross the limits of adjudication, they should give rise to increased participatory rights of the interests affected, including interests others than the parties to the dispute. Competition law enforcement may fit the dispute resolution model if for instance we have a dispute between well-defined parties and the effects of the specific conduct concern one, or more, specific relevant markets.

The adjudication of polycentric disputes is however problematic because the complexity of the dispute and the range of those affected, which sometimes it is difficult to foresee, render it quite difficult to organize their participation to the dispute so as to represent their position. Informed only by the litigating parties, the decision-maker is ill-equipped to determine the impact of the decision reached on the different interests affected, with the consequence that the decision reached may negatively affect societal welfare. Indeed, some problems, such as the allocation of economic resources, for instance the capture of the surplus value generated by innovation, may indeed —present too strong a polycentric aspect to be suitable for adjudication.

In the digital economy, and because of the complexity of digital value chains, a dispute may have quite pronounced polycentric elements, in view of the cascade effects and the impact to the overall economy, as many sectors may rely on the specific digital platforms concerned. This renders the distinction with the administrative/managerial model particularly difficult at times, at a practical level, although there is some value in thinking of the two (adjudication and administrative managerial model) as ideal types forming a *continuum* with regard to the —appropriate degree of discretion and consequently the

1492 For a discussion, see I. Lianos, *Effective Competition Law Remedies*, in Ph. Lowe, G. Monti, M. Marquis (Eds.), *European Competition Law Annual 2013*, (Hart Publishing, 2016), 105.

legitimacy of the action of the institutions in charge, which is closely related to the participation of the interests affected. Put simply, the more competition law moves towards the regulatory/managerial model, and —structural adjudication comes close to that, the more it should integrate the legitimacy-building mechanisms of such model, with an enhanced participation of the entities subject to the remedies as well as of all those whose interests may be affected (i.e. consumers, competitors in related markets, interests vicariously represented by organizations and citizen's groups, i.e. environmental associations). The triadic model of dispute resolution, limited to the parties and the adjudicator, needs to give way in circumstances of significantly polycentric disputes to the more inclusive model of —structural adjudication in order to preserve the legitimacy of competition law enforcement and its continued relevance and appeal to society at large.

Remedies adopted in the context of commitment decisions often fit closely to the model of —structural adjudication: being prospective by nature and aiming to the elimination of any potential threat to the value of competition, by proceeding to the re-structuring of the organization involved in the violation of competition law, and not just the issuance of a prohibition aimed at some specific act or conduct. However, they intervene *ex post* and in the context of the digital economy where market tipping may bring long lasting effects, this may not be the most appropriate way of action. A different option is the possibility of some competition authorities to order sector enquiries, providing them the possibility to adopt remedies, or order market investigation references, with the same effect. The aim of such market investigation or sector enquiry would be to map the possible bottlenecks and other sources of power, using the value chain methodology, before envisaging possible remedies that may tackle these problems. They will thus offer the opportunity to intervene *ex ante* and prevent any anticompetitive conduct. This has already been suggested in the Furman Report¹⁴⁹³, taking advantage of the possibilities offered by the UK regime on market investigation references¹⁴⁹⁴. BRICS competition authorities should grasp the opportunities provided by their mandate and legislative framework to use these tools when available, either on their own, or jointly with other regulators. One should note the initiative of the South African Competition Commission, which adopted in April 2019 the provisional findings and recommendations of its Data Services Market Inquiry, making plain use of the tool of market inquiries that has been significantly overhauled by the Amendment Act 18 of 2018 by way of, among other things, placing a time period on when a market inquiry should be completed and giving the Competition Commission stronger powers to address the shortcomings identi-

1493 J. Furman et al., Unlocking digital competition, Report of the Digital Competition Expert Panel (March 13, 2019), available at <https://www.gov.uk/government/publications/unlocking-digital-competition-report-of-the-digital-competition-expert-panel> 116-117 (hereinafter Furman report), (suggesting an investigation of the entire digital advertising value chain). The Report noted however that the remedies adopted in this context 'are largely static' and that 'rules imposed as a remedy following a market investigation may quickly go out of date' (p. 79).

1494 Following Part 5 of the Enterprise Act 2002. In the EU context, sector inquiries do not carry the possibility for the Commission to impose remedies, but may instead lead to the initiation of competition law proceedings under Articles 101 and 102 TFEU. Consequently, the mandate of the Commission in exercising its competition law competence is exclusively adjudicator.

fied¹⁴⁹⁵. Since this Act, the Competition Commission has the power to make binding recommendations at the completion of a market inquiry and to engage with a variety of stakeholders, thus offering a holistic perspective on the issues arising¹⁴⁹⁶.

5.4.2.4. Ex ante or ex post regulation of algorithms

Algorithms may facilitate or support collusion and, for this reason, their use sometimes may raise competition law concerns, among other issues that may be even more important costs from a social welfare perspective (ethics, discrimination, privacy)¹⁴⁹⁷. Competition concerns are principally concerned by algorithmic collusion, in particular by autonomous 'Q-learning algorithms', and algorithmic price discrimination. There have been discussions to introduce some form of *ex ante* evaluation and regulation of algorithms by an algorithmic regulator (or a competition authority) in order to screen them and assess the competition risk they pose¹⁴⁹⁸. *Ex post* auditing and sanctioning should complement these *ex ante* regulation¹⁴⁹⁹. Both these *ex post* and *ex ante* assessments should in our view be performed by specialised digital regulators, in view of the economies of scale achieved in analysing an algorithm in view of the variety of regulatory concerns they may raise, thus combining competition law screening with data protection, non-discrimination/equality and ethics screening. The role of *ex ante* and *ex post* regulation of algorithms is also examined in the Chapters dedicated to algorithmic collusion (Chapter 8) and privacy restrictions to competition (Chapter 11).

5.4.2.5. Data portability

Data portability is the right extended to digital users to move, copy and / or transfer their personal data across different platforms. This right insures the free flow of personal data and that users are not captive to a few digital platforms. This has important synergies to competition law and enforcement in the digital world where access to personal data is crucial for the development of some digital products and services in the world of multi-sided platforms with of strong network effects and lock-in effects.

1495 Competition Commission of South Africa, Data Services Market Inquiry – Provisional Findings and Recommendations (April 24, 2019), available at <http://www.compcom.co.za/wp-content/uploads/2017/09/Data-Services-Inquiry-Report.pdf>.

1496 See, the South African Competition Commission's Guidelines for stakeholder participation <http://www.compcom.co.za/wp-content/uploads/2017/09/Data-Services-Market-Inquiry-Guidelines-200917.pdf>

1497 See, inter alia, L. Andrews, B. Benbouzid, J. Brice, L. A. Bygrave, D. Demortain, A. Griffiths, M. Lodge, A. Mennicken, K. Yeung, Algorithmic Regulation, LSE Discussion Paper 85 (September 2017), available at <https://www.kcl.ac.uk/law/research/centres/telos/assets/DP85-Algorithmic-Regulation-Sep-2017.pdf>

1498 See, for a discussion, J.E. Harrington, Developing Competition Law for Collusion by Autonomous Artificial Agents", WP, Wharton School/University of Pennsylvania, (April 2018); J. E. Gata, Controlling Algorithmic Collusion: short review of the literature, undecidability, and alternative approaches, REM Working Paper 077-2019 (March 2019), available at https://rem.rc.iseg.ulisboa.pt/wps/pdf/REM_WP_077_2019.pdf.

1499 See, for a discussion, D. Desai & J. Kroll, "Trust but Verify: A Guide to Algorithms and the Law", (2018) 31(1) Harvard Journal of Law and Technology 1; J. Kroll, J. Huey, S. Barocas, E. W. Felten, J. R. Reidenberg, D. G. Robinson & H. Yu, "Accountable Algorithms", (2017) 165 University of Pennsylvania Law Review 633.

In this Section we will provide an overview of data portability right under data regulations, from global perspectives, mainly in the EU and the US as well as from the BRICS perspectives. In each section we will answer the following questions: is data portability a recognized right under the relevant national regulations? If yes, what is the national parameters of data portability? How have this right been exercised?

5.4.2.5.1. Data Portability in EU Regulations

In 2016, the European Union (the EU) adopted the General Data Protection Regulation (GDPR)¹⁵⁰⁰ to harmonize data protection laws in the EU / European Economic Area (EEA) and extend data privacy for all EU citizens inside and outside of the EU. The GDPR addresses organizations across the world that collect and process data on individuals who are physically located within an EU member state, regardless of whether they are established inside or outside the EU (extraterritoriality).¹⁵⁰¹

In particular, the GDPR specifies a number of rights to digital users, among which is data portability.¹⁵⁰² It requires all data subjects to have the right to receive the personal data concerning him or her¹⁵⁰³, which he or she has provided to a controller, in a structured, commonly used and machine-readable format.¹⁵⁰⁴ The GDPR also provides that, where technically feasible, the data subject shall have the right to have the personal data transmitted directly from one controller to another. This right however will not be applicable where the processing of the information is for the purpose of the public interest or is done in the exercise of an official authority.

The GDPR places compliance obligations on organization and requires an appointment of Data a Protection Officer (DPO) for organizations whose core activities consist of processing operations which require regular and systematic monitoring of data subjects on

1500 The GDPR replaced replaces the Data Protection Directive 95/46/EC. The regulation came into force in May 2018. See <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=EN> (last accessed September 2, 2019).

1501 Article 3 of the GDPR. The GDPR applies to controllers and processors including “cloud storage”. See also EU, A new era for data protection in the EU What changes after May 2018, available at https://ec.europa.eu/commission/sites/beta-political/files/data-protection-factsheet-changes_en.pdf (last accessed September 2, 2019). It applies to the processing of personal data by controllers and processors in the EU, regardless of whether the processing takes place in the EU or not. The GDPR also applies to the processing of personal data of data subjects in the EU by a controller or processor not established in the EU, where the activities relate to: offering goods or services to EU citizens (irrespective of whether payment is required) and the monitoring of behavior that takes place within the EU. Non-EU businesses processing the data of EU citizens also have to appoint a representative in the EU.

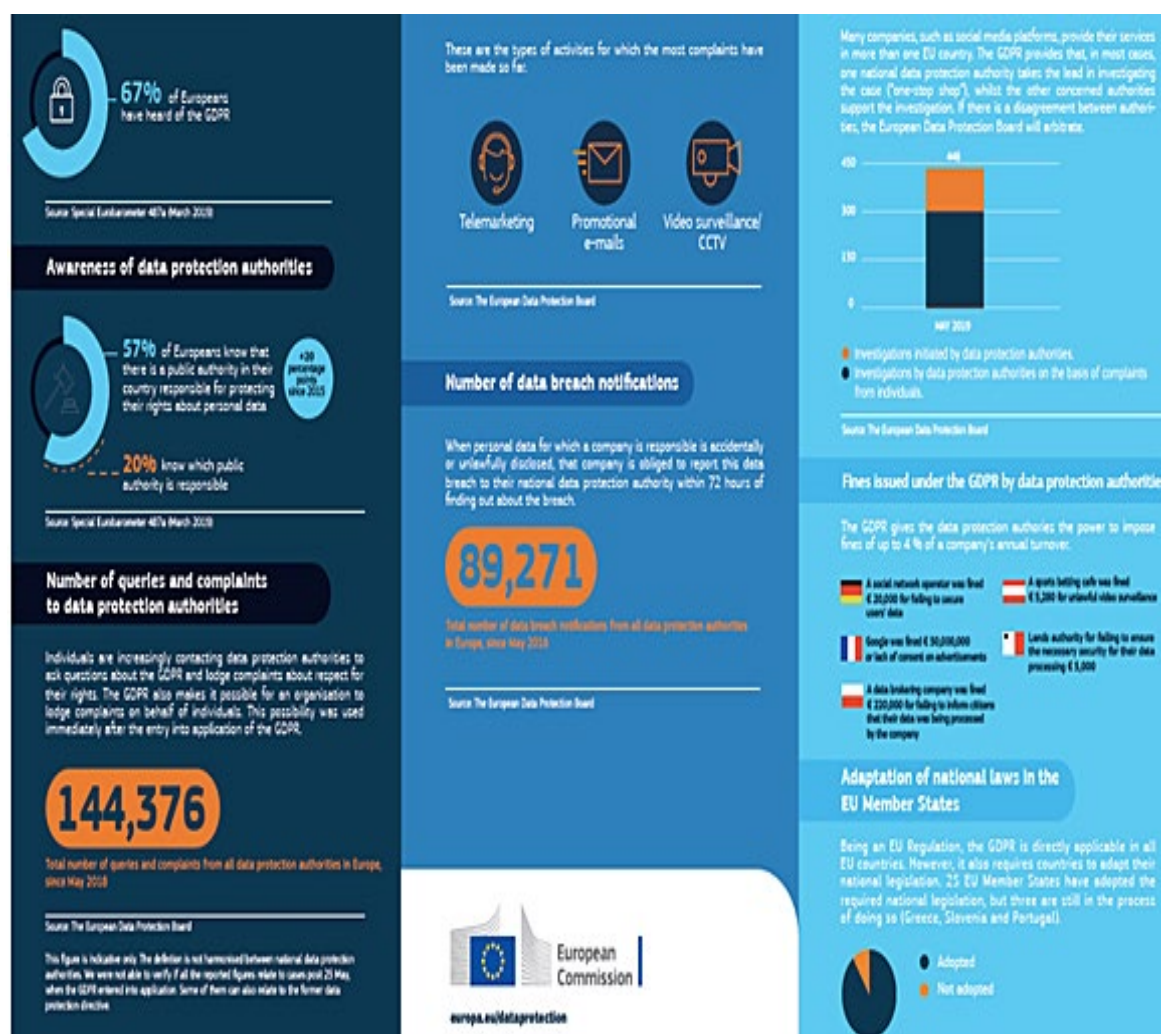
1502 Such as the right to be forgotten, breach notification, right to access, privacy by design, right to restrict data processing, right to object and the rights in respect of decisions involving automated processing and profiling.

1503 (1) ‘personal data’ means any information relating to an identified or identifiable natural person (‘data subject’); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;

1504 Controllers must make the data available in a structured, commonly used, machine-readable and interoperable format that allows the individual to transfer the data to another controller. See Article 20 of the GDPR – Right to data portability, and Recital 68 – Right to data portability

a large scale or of special categories of data or data relating to criminal convictions and offences to carry out internal record keeping requirements.

Figure 5.5. The GDPR in Numbers (May 2019)



Source: The European Data Protection Board

Non-compliance with the GDPR could result in varying consequences for the organizations addressed by the rules. These vary from a written warning, periodic data protection audits to fines of up to €10 million, or 2% of the worldwide annual revenue of the prior financial year, whichever is higher or 20€ million or 4% of an organization's annual worldwide turnover (whichever is greater), depending on the violation. The most serious penalties apply to organizations that suffer a data breach as a consequence of non-compliance. Since 25 May 2018, 30 different EEA SAs have registered a total amount of 281 cases with cross-border component in the IMI system, where the large part of the opened cases derived from complaints by individuals (194 cases) and related to related to the exercise of the data subjects' rights, to the consumer rights and to data breaches.¹⁵⁰⁵ Most recent data (May 2019) shows an increase in the number of cross-boarder cases (446). Earlier this year, the French Privacy watchdog imposed a fine of 50 million

¹⁵⁰⁵ EDPB, First overview on the implementation of the GDPR and the roles and means of the national supervisory authorities available at https://edpb.europa.eu/sites/edpb/files/files/file1/19_2019_edpb_written_report_to_libe_en.pdf.

euros on Google for lack of transparency, inadequate information and lack of valid consent regarding the ads personalization.¹⁵⁰⁶

5.4.2.5.2. Data Portability in the US

The United States has not passed comprehensive federal legislation covering privacy or data protection. It has enacted sector-specific regulation that created a form of data portability. In the healthcare domain, the Health Insurance Portability and Accountability Act (HIPAA) gave patients a federal right to access their health records. Lothar Determann, *Healthy Data Protection*, pp. 7-8 (Mar. 2019). The 2010 Dodd-Frank Act created data portability rights in financial and account information that extends to authorized third parties. Peter Leonard, *Regulatory trends and emerging practices in access to customer data, portability and data sharing in the financial services sector*, pp. 16, 28 (2017). In the last relevant sector, Congress had permitted consumers to access credit scoring information and an annual free credit report.¹⁵⁰⁷

At the state level, California has led with the California Consumer Privacy Act, which will not go into effect until January 2020. This statute creates a free right to data portability: consumers may request personal information that both online and offline businesses must provide in a format conducive to portability.¹⁵⁰⁸ By contrast to violations of the Sherman Act, only the state attorney general can enforce the statute. Businesses have a 30 day cure period to avoid civil penalties that can reach \$2500 per violation, unless intentional, permitting a fine of \$7500 per violation.¹⁵⁰⁹ In term of scope of the data portability right, California's provision goes further than Europe's equivalent requirement, since it applies to inferred data concerning an individual, which the GDPR exempts.¹⁵¹⁰ Several states have proposed or are investigating data privacy laws primarily based on the California model.¹⁵¹¹

Beyond the statutory route to data portability, U.S.A. consumers could pursue a common law right, centered in contract law. A pending Restatement of the Law on Consumer Contracts may advise courts whether to view privacy policies as contracts.¹⁵¹² The FTC however, has adopted the more strict, contract view while enforcing consumer protection law.¹⁵¹³ State attorneys general can pursue similar actions. Several federal district

1506 National Data Protection Commission (CNIL) Press Release (21 January, 2019) <https://www.cnil.fr/en/cnils-restricted-committee-imposes-financial-penalty-50-million-euros-against-google-llc>.

1507 A. Chandler, M.E. Kaminski and W. McGeveran, *Catalyzing Privacy Law*, p. 16 (2019).

1508 E. Goldman, *An Overview of the California Consumer Privacy Act*, pp. 2, 5 (12 June 2019); Lydia F de la Torre, *A Guide to the California Consumer Privacy Act of 2018*, p. 14 (Nov. 2018).

1509 *Id.*, p. 8.

1510 A. Chander et al., p. 16 (citing Art. 29 Working Party Guidelines on the Right to Data Portability, p. 10 (2017); Cal. Civ. Code Sect. 1798.140 (o), (l), (k), (m)).

1511 A. Chander et al., pp. 28-34.

1512 They may just state company policy. Stacy-Ann Elvy, *Commodifying Consumer Data in the Era of the Internet of Things*, 59 *Boston College L. Rev.* 423, 442 (2018).

1513 See recent FTC decision and \$5 billion fine against Facebook.

courts have not found a property interest in personal information.¹⁵¹⁴ The Third Circuit tests for a property interest by looking to whether plaintiffs alleged that they intended to monetize their data.¹⁵¹⁵ The debate of whether privacy policies qualify as enforceable contract rights relates to data portability because several of the leading online platforms have self-regulated, creating data portability rights that would comply with Article 20 of the GDPR.¹⁵¹⁶

5.4.2.5.3. Data Portability in the BRICS Countries

In 2018, **Brazil** approved the General Data Protection Law (GDPL), expected to take effect in 2020.¹⁵¹⁷ The GDPL sets the rules for the use of personal data in Brazil.¹⁵¹⁸ With few exceptions, the law is expected to apply to all sectors of the economy in relation to processing of personal data.¹⁵¹⁹

The GDPL follows the GDPR in many respects such as extraterritorial application where any foreign company that has at least a branch in Brazil, or offers services to the Brazilian market and collects and treats personal data of data subjects located in the country, regardless of the nationality, will be subject to the law.¹⁵²⁰ However, among the differences between the two legislations, the definition of ‘sensitive personal data’, were the GDPL seems to go further when defining the term than the GDPR¹⁵²¹ but however allows for the commercialize of such data provided there is authorization from the public authority.

Among the rights provided under the GDPL is data portability, which access to data, rectification, cancellation or exclusion, opposition to treatment, right to information and explanation about the use of data. The GDPL also provides for the international transfer of personal data, even to countries that are not considered to have an adequate level of protection provided a specific and express consent of the data subject is obtained or if there is a guarantee, by the controller through contractual instruments such as binding corporate rules and standard clauses, that it will comply with the principles, data subject rights and the data protection regime provided by law.

1514 Elvy, p. 464 n.214, n.217; but see id., n.215, n.216.

1515 Id., p. 465 (citing *In re Google Inc. Cookie Placement Consumer Privacy Litig.*, 806 F.3d 125, 149 (3d Cir. 2015)).

1516 Joshua Gans, *Enhancing Competition with Data and Identity Portability*, The Hamilton Project (Brookings), Policy Proposal, p. 12 (June 2018) (listing Google, Facebook, Twitter, and LinkedIn).

1517 Available here (in Portuguese) http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2018/Lei/L13709.htm and in English here https://iapp.org/media/pdf/resource_center/Brazilian_General_Data_Protection_Law.pdf.

1518 the LGPD is replacing and/or supplementing this sectoral regulatory framework, which was sometimes conflictive, marshy, without legal certainty and made the country less competitive in the context of an increasingly data driven society. 40 legal norms at the federal level that directly and indirectly deal with the protection of privacy and personal data in a sector-based system.

1519 such as national and public security; pure research, artistic and journalistic purposes

1520 Article 3.

1521 Article 5 II “sensitive personal data: personal data concerning racial or ethnic origin, religious belief, political opinion, trade union or religious, philosophical or political organization membership, data concerning health or sex life, genetic or biometric data, when related to a natural person”.

The GDPL also addresses the role of the data protection officer (DPO) who is responsible to insure compliance within an organization and provide guidance to staff and contractors in relation to the measures to be taken for the protection of personal data. The enforcement of the law also envisages the creation of a national Data Protection Authority (NPD), which is expected to be created by a provisional measure or proposed in a bill in the near future.

In case of violation of the GDPL, administrative sanctions may be applied by a dedicated authority which includes notices and fines, that may vary from 2 percent of the organization's turnover in Brazil in its last fiscal year, or R 50,000,000.00 (whichever is higher) per violation.

In Russia, the Federal Law No. 152-FZ "On Personal Data" (the "**PDL**") was adopted in 2006.¹⁵²² Under the PDL, personal data is defined as any information directly or indirectly related to an identified or identifiable individual including his surname, first name, patronymic, year, month, date and place of birth, address, marital, social, property status, education, profession, income, other information.¹⁵²³ The PDL includes the concept of "data operator", which is defined as a person that organizes or carries out the processing of personal data and determines the purposes of processing.¹⁵²⁴ It has been reported that Russian authorities now apply a broader interpretation of Personal Data such as the Federal Service for Supervision of Communications, Information Technology and Mass Media (Roskomnadzor) actions against telecom companies for selling user activity data to advertising companies, while the Ministry of Communications (the regulator in the area of Personal Data) has issued non-binding clarifications, where it concluded that personal mobile phone numbers and emails addresses by themselves constitute Personal Data.¹⁵²⁵

There is no extraterritoriality under the PDL; it applies to any legal entity, including any foreign entity with a legal presence in Russia, that collects personal data in Russia. In addition, the PD Law provides for local storage requirement, which applies to any data operator that processes the personal data of Russian citizens, regardless of its jurisdiction.¹⁵²⁶

The Federal Service for Supervision of Communications, Information Technology and Mass Media (Roskomnadzor) is the data protection authority. In 2018, the Roskomnadzor carried out 728 inspections¹⁵²⁷, revealed 1882 violations of the PDL and imposed ad-

1522 Available at https://iapp.org/media/pdf/knowledge_center/Russian_Federal_Law_on_Personal_Data.pdf. Other relevant laws include Information, Information Technologies and Information Protection Act 2006 (Act No. 149 FZ) as well as general and sectoral-specific laws such as the Russian Labor Code 2001, the Russian Air Code 1997 and Articles 23-24 in the Russian Constitution of 1993.

1523 Article 3 (1) of the PDL.

1524 Article 3 (2) of the PDL.

1525 <https://free.dataguidance.com/laws/russia-personal-data-protection-act/>

1526 Amendments introduced in 2014 <https://gettingthedealthrough.com/area/52/jurisdiction/26/data-protection-privacy-russia/>.

1527 K. Andreeva, Anastasia Dergacheva and Vasilisa Strizh, Hot Topics In Data Privacy Regulation In Russia, November 27, 2018 <https://www.morganlewis.com/-/media/files/publication/presentation/webinar/2018/hot-topics-in-personal->

ministrative fines for processing of personal data without proper legal grounds, failure to obtain a written consent of an individual, failure to inform an individual on the processing of his personal data – warning or, failure to publish a personal data processing policy and failure to file a notification to Roskomnadzor.

The data protection legislation however still lags behind compared to EU standards where new categories of personal data such as genetic data are lacking, new rights not provided for such as data portability right and new data operators' obligations missing such as to notify on the data leakage.¹⁵²⁸ There has been some recent developments with the coming into force of amendment requiring some strict storage requirements on Russia's telecom and internet industries. The Russian Ministry of Digital Development, Communications and Mass Media introduced new legislative initiatives to adopt big data legislations in Russia.

In 2018, the draft Personal Data Protection Bill, 2018 (PDPB)¹⁵²⁹ was submitted to the Government of India. The draft follows the GDPR to a great extent.¹⁵³⁰ The bill includes extraterritoriality provision similar to the GDPR.¹⁵³¹ It also includes principles right such as right to access and correction, portability, right to be forgotten.¹⁵³² The PDPB includes the right to data portability where every Indian citizen can ask companies to share details of his/her personal data that has been generated while he/she was using a service or good. Individuals whose personal data is being used and stored by an organization will have the right to receive that data in a structured, commonly used format that can be read by technology or machines that any other organization may be.¹⁵³³

Transfers of personal data to third countries also requires an adequacy decision just like the GDPR and cross border data transfers is allowed under standard contractual clauses.¹⁵³⁴ The draft PDPB also requires companies to localize data where a copy of all personal data falling under the incidence of the bill should be stored in India by the data controller. Additional copies can be stored outside of India, however the government can choose to make it mandatory to store certain categories of data only in India.

The draft bill includes different penalties to address different provisions. The maximum penalty is either Rs 5 crore or to 2% of the global turnover of a company in the previ-

[data-regulation-in-russia_27nov18.ashx](#) .

1528 On May 26, 2017, the lower chamber of Russian parliament approved a series of amendments to the Russian Data Protection Act. These amendments include a new legal obligation on data controllers to report massive data leaks to the Roskomnadzor.

1529 Draft of the Personal Data Protection Bill, 2018 https://www.meity.gov.in/writereaddata/files/Personal_Data_Protection_Bill,2018.pdf .

1530 However "critical personal data" is not defined yet.

1531 Section 2.

1532 The draft bill makes reference to three categories of data: personal data that refers to any data about or relating to a natural person (named data principal in the bill); sensitive personal data which includes health and genetic data, biometrics, caste or tribe data, passwords etc. and critical personal data which remains undefined but can be notified by the central government. T

1533 Section 26.

1534 Section 41.

ous year (whichever is higher). For more severe violations, such as non-compliance with cross-border transfer provisions or consent, penalties extend to Rs 15 crore or 4% of the global turnover in the previous financial year (whichever is higher).¹⁵³⁵

There is no official right for data portability under the **Chinese** law or regulations. However, the right is mentioned in the *Information Security Technology – Personal Information Security Specification* published by the National Information Security Standardization Technical Committee, which took effect in 1 May 2018. It does not bind the administrative authorities and courts, but they can and are expected to refer to the Specification in the reasoning.

As stated in the Specification, data subjects have the right to have personal data ported to a third party if technically feasible. But this applies only to (i) basic personal data and personal identity information, (ii) health and physiological information, and (iii) education and employment information. The Specification also sets a time limit of 30 days for a request for data portability.

In principle, data controllers should not charge reasonable fees for such request but they are allowed to charge certain fees in the case of repeated requests during a certain period of time. They should also provide other plausible alternatives when facing difficulty in data porting, in order to protect the legitimate rights of data subjects. In addition, data controllers can refuse the request in consideration of public interests.

In South Africa, the Protection of Personal Information Act no. 4 of 2013 (POPI) was signed into law in November 2013 nonetheless many substantive provisions of the law have not yet come into effect.¹⁵³⁶ While not fully in effect, POPIA is generally regarded as being a codification of the current common law position in South Africa. Once POPI is in effect, it will specifically regulate the processing of personal information that is entered into a record pertaining to natural living persons as well as existing legal persons. The POPI provides users with the following rights:

- to be informed about how their personal data will be used,
- to know whether personal data is held by a data collector and to request access to their data,
- to have their personal data rectified or erased, specifying that data controllers must respond to such a request within a month,
- to restrict data processing on request from the data owner, and
- data owners must opt-in to direct marketing programmes.

The right to data portability however is not explicitly provided for in POPI.¹⁵³⁷ Arguably, the new regulator may pursue the adoption of the right in the future following suit of

1535 Chapter XI.

1536 The Act is expected to come into effect in 2019 and firms will be given 1 year to become complaint after it comes into effect. Available at <http://www.justice.gov.za/inforeg/docs/InfoRegSA-POPIA-act2013-004.pdf>.

1537 D. Eloff, *Unscrambling the General Data Protection Regulation*. De Rebus (2018). Available [here](#).

data portability principals adopted in the telecom sector.¹⁵³⁸

Cross-boarder data transfer is possible under the POPI provided the country where the information will be processed or the recipient of the information are governed by rules (whether by law or contract) similar to that of the POPI.

The POPI will be enforced by the Information Regulator. The Information Regulator has been appointed and has published the Regulations to POPI.¹⁵³⁹ Similar to the GDPR, the POPI provides for the appointment of Data protection officer which should be registered at the Information Regulator

Violation of the POPI is subject to a fine of R10 million or imprisonment (or both) for a period of no longer than ten years (section 107), or alternatively to an administrative fine (section 109).

Conclusion: With the adoption of the GDPR and its extraterritorial reach, the threshold for protecting personal data has been set to a higher standard. Among the rights conferred under the GDPR is data portability where digital users to move, copy and / or transfer their personal data across different platforms. Our discussion shows that there is still however room to develop national data protection, and data portability regulations in the US and in BRICS Countries. Except for some sectoral and state legislations, the US lags behind the EU in this regard. In Brazil, India and China, data portability is either adopted in the legislation, provided for under draft law or stipulated under relevant standards. While in Russia and South Africa their respective laws do not provide for said right.

Although it is not mainly designed as a tool to combat monopolies and market power, data portability will have significant impact on competition in digital markets. Multi-sided digital platforms are characterized by high network and lock-in effects. In a winner takes all, or most, where undertakings compete for the market rather than in the market, the right to data portability may provide some relief from the power that large digital platforms hold. It is important to note that this right only covers personal data while lock-in effects may not be just limited to personal data. It is also important to keep in mind however that data portability works both ways. For this reason, some have argued that data portability will also be imposed on small and new competitors and potential competitors as well which may result in future competing firms designing their products into a compatible format to the incumbent thus stifling innovation.¹⁵⁴⁰

Data portability is an important addition to data protection laws and with the extraterritoriality of the GDPR it is becoming a standard norm. BRICS countries that have yet to adopt the said right and those who already have should consider its impact on competition enforcement and understand its possible benefit and limitations to address market power in markets dependent on commercialization of personal data (see Table 5.1.).

1538 Telecom sector mobile number portability was introduced in 2006.

1539 Draft regulations <http://www.justice.gov.za/infoereg/docs/20181214-gg42110-rg10897-gon1383-POPIregister.pdf>.

1540 T. Cowen, Marginal Revolution, available at <https://marginalrevolution.com/marginalrevolution/2018/05/forced-data-portability-mistake.html>.

Table 5.1. Overview of National Legislations on Data Portability and Extraterritoriality

No.	Country	Data Portability (Yes / No)	Extraterritoriality (Yes / No)	Comments
	The EU	Yes	Yes	<ul style="list-style-type: none"> The GDPR
	The US	[Yes]	No	<ul style="list-style-type: none"> Sectoral regulations (medical and financial sectors) The State of California
	Brazil	Yes	Yes	<ul style="list-style-type: none"> General Data Protection Law (GDPL)
	Russia	No	No	<ul style="list-style-type: none"> The Federal Law No. 152-FZ On Personal Data
	India	[Yes]	[Yes]	<ul style="list-style-type: none"> Draft of the Personal Data Protection Bill, 2018 (PDPB) The draft follows the GDPR to a great extent providing for data portability and extraterritoriality provisions.
	China	[Yes]	[No]	<ul style="list-style-type: none"> No official right for data portability under the Chinese law or regulations The right is mentioned in the Information Security Technology – Personal Information Security Specification published by the National Information Security Standardization Technical Committee, which took effect in 1 May 2018 (non binding)
	South Africa	No	No	<ul style="list-style-type: none"> The Protection of Personal Information Act no. 4 of 2013 (POPI) No express data portability right The POPI applies to the processing of personal information where the responsible party is (1) domiciled in the Republic; or (2) not domiciled in the Republic, but makes use of automated or non-automated means in the Republic, unless those means are used only to forward personal information through the Republic

Source: authors' compilation

5.4.2.6. Data commons or data clubs and interoperability¹⁵⁴¹

The constitution of data commons may of course facilitate the development of new entry in data-related markets and should be promoted, for instance by enabling the diffusion of data harvested by government bodies, as this has been the case in the EU with the Public Sector Information (PSI) Directive¹⁵⁴² and more recently of the new Open Data Directive¹⁵⁴³. Another option would be to promote the development of data clubs, operating on an open, non-exclusive basis, where different companies may constitute data pools and share data, of course making sure that these are properly scrutinised and cannot serve as facilitators for cartel activity.

However, the problems arise in situations in which one undertaking holds a data bottleneck and therefore becomes a crucial node of the value chain in the diffusion of information and the realization of the productive process. This includes but does not necessarily exhaust situations of undertakings holding an essential facility. In this context, competition authorities finding a competition law infringement (e.g. abuse) may impose as a remedy interoperability. Interoperability may also be mandated by sector-specific regulators.

In this new technological environment, connectivity and interoperability constitute fundamental attributes for inclusion in economic progress: they allow individuals to access a whole new world of opportunities, economic growth and potential disenfranchisement from traditional market relationships and societal hierarchies. Conversely, the incapacity of digital objects to communicate or understand (including “mine”¹⁵⁴⁴) each other’s data thwarts the ability of consumers to contribute to the information flow with new products or services, undermining a central feature of the Internet: the significant amount of user-driven innovation unleashed by open and interconnected systems¹⁵⁴⁵. In a data-driven economy, the importance of open technical standards can hardly be overstated: common technical and legal protocols for interconnection and data processing enable communication and portability, thereby stimulating innovation and promoting competition of services within a given technological paradigm.

The degree to which such standards are truly open is likely to be a significant point of contention among different types of businesses. Granting automatic access to technol

1541 A significant part of this Section draws on N. Zingales, *Beyond Technical Standardization: A New EU Governance Model for the IOT* (forth. 2019).

1542 Directive 2013/37/UE amending Directive 2003/98/EC on the re-use of public sector information, [2013] OJ L 175/1.

1543 Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, [2019] OJ L 172/56.

1544 See the definition of “mining” provided by Triaille and d’Argenteuil (2014), as “The automated processing of digital material, which may include texts, data, sounds, images or other elements, or a combination of these, in order to uncover new knowledge or insights”. See Jean-Paul Triaille and Jérôme de Meeûs d’Argenteuil (2014). Study on the legal framework of text and data mining (TDM) Available at http://ec.europa.eu/internal_market/copyright/docs/studies/1403_study2_en.pdf

1545 What Jonathan Zittrain calls “generativity”. See J. Zittrain, “The Generative Internet”, 119 *Harvard Law Review* (2006) p. 1974; see also *The Future of the Internet- and How to Stop it* (Yale University Press, New Heaven 2008)

ogy implementers can affect a technology provider's ability to appropriate the value of its innovation in downstream markets; this in turn may lead important players in the industry to not only abstain from standard-setting efforts, but also implement strategies aimed at foreclosing interoperability with competitors' technologies (horizontal interoperability) and preventing third parties from building on top of their technology (vertical interoperability). While these strategies are not new, the legal framework has so far provided solutions designed to address such concerns merely from a technological viewpoint: it has regulated the conditions under which a technology owner must grant access to the fruits of its labour. However, in doing so it has failed to articulate a clear vision on the appropriation of an important dimension of such labour, consumption data, and the web of overlapping rights that are involved in fashioning a data access regime.

Interoperability can be defined as the ability to transfer and render useful data and other information across systems, applications, or components¹⁵⁴⁶. The combination of transmission and analysis involves several layers of the so-called Open Systems Interconnection model (OSI model)¹⁵⁴⁷, requiring the achievement of various levels of interoperability¹⁵⁴⁸. At a minimum, one should distinguish the lower and the upper layer, pointing to a division between infrastructural interoperability and data interoperability. While infrastructural interoperability enables IoT devices to exchange data under common network protocols, data interoperability concerns more directly users and developers of IoT applications, allowing them to *meaningfully* connect the interfaces of those applications.

At the infrastructure (lower) layer, interoperability is achieved through the use of common protocols for the conversion, identification and logical addressing of data to be transmitted over a network. The most common standards in this layer are Ethernet and TCP/IP. Protocols are also used for communication between computer programmes over telecommunications equipment, through common languages such as HTTP for

1546 U. Gasser, "Interoperability in the Digital Ecosystem", Berkman Center Research Publication No. 2015-13 July 6, 2015. Available at SSRN: <http://ssrn.com/abstract=2639210>

1547 Open Systems Interconnection model (OSI Model) is a conceptual model that defines a unifying standard for the architecture of networking systems. For more information, see http://www.tcpipguide.com/free/t_TheOpenSystemInterconnectionOSIReferenceModel.htm

1548 More specifically, the interoperability required at the different layers concerns the following:

- At the physical layer (#1), the definition of hardware specifications; the transformation of local data into bits that can be sent over the network; and the actual transmission of those data over the network.
- At the data link layer (#2), the establishment of the functions required for the establishment and control of logical links between local devices on a network; and the procedures used by devices to control access to the network medium.
- At the network layer (#3), the logical addressing and the routing of data across a series of interconnected networks.
- At the transport layer (#4), ensuring that various software applications can all send and receive data using the same lower-layer protocol implementation.
- At the session layer (#5), ensuring the persistent logical linking of two software application processes, to allow them to exchange data over a prolonged period of time.
- At the presentation layer (#6), compressing, encrypting and translating different formats of representing data.
- At the application layer (#7), implementing the functions that are needed by users of the network and issuing the appropriate commands to make use of the services provided by the lower layers.

web content, and STMP, IMAP and POP3 for emails¹⁵⁴⁹.

At the application (upper) layer, interoperability is attained by reading and reproducing specific parts of computer programs, called interfaces, which contain the information necessary to “run” programs in a compatible format. However, different interfaces are needed depending on who actually “runs” the program¹⁵⁵⁰: if it is from the perspective of the user/consumer of the computer program, user interfaces are relevant to the extent that they enable him or her to visualize and deploy a specific set of commands or modes of interaction with the program, that can potentially be replicated into another (different) application. Importantly, although this kind of interoperability can increase a program’s utility to the user, it is not required for the purpose of its technical functioning. Most choices for user interfaces are indeed dictated not so much by functional elements of the program, as by the pursuit of the goals of user friendliness, aesthetical appeal and promotion of brand-specific features.

From the perspective of the developer of a computer program, the relevant interfaces for interoperability are the Application Programming Interfaces, i.e. any well defined interfaces which define the service that one component, module or application provides to other software elements¹⁵⁵¹. In a recent case on the scope of copyright protection for interface specifications, a US District judge distinguished three categories of information provided by these interfaces, namely (a) declaration or method header lines; (b) the method and class names; and (c) the grouping pattern of methods¹⁵⁵². In essence, these interfaces contain the information which enables third-party applications to run atop existing computer programs without a loss of functionality.

However, interoperable APIs do not necessarily imply the ability of either users or developers to meaningfully relate the outputs of interoperable computer programs, unless they are expressed in the same language (most commonly, JPEG for images, HTML for webpages, PDF for documents and MP3 for music). This can be achieved through the so called “data interfaces”, which are responsible for restoring and retrieving data in a specific format¹⁵⁵³. Differently from APIs, where specific interoperability information is required for the connection and execution of interoperable programs, data interoperability may also be obtained *ex post*, by exporting the output of the program and converting it into a readable format. This has implications for the definition of the role of regulators, as opposed to markets, should play in the promotion of systemic interoperability. Before reaching that conclusion, however, it is necessary to appreciate the extent to which legal provisions can be used to prevent, rather than achieve interoperability.

1549 See A. Van Rooijen, *The Software Interface between Copyright and Competition Law: A Legal Analysis of Interoperability in Computer Programs* (Kluwer Law, Alphen aan den Rijn 2010), p.14

1550 According to the Posix Open Systems Reference Model, these interfaces can be of four types: (a) Human/computer interface services; (b) Information interchange services; (c) Communication services; and (d) Internal system services.

1551 See C. R. B. de Souza et al, “Sometimes You Need to See Through Walls- A Field Study of Application Programming Interfaces”, in *Computer supported cooperative work*, ACM Press 2004, p. 63-71.

1552 Oracle Am., Inc. v. Google Inc., No. 3:10-cv- 3561 (N.D. Cal. June 20, 2012), ECF No. 1211

1553 See A. Van Rooijen, *supra* n. 15, *ibid*.

It is apparent that interfaces at each of these layers¹⁵⁵⁴ serve different functions, all of which are relevant for the deployment and development of, for instance, IoT applications. However, the mechanisms by which interoperability is achieved or prevented at one layer may be significantly different from those adopted elsewhere. Accordingly, it would be a mistake to think that the adoption of particular governance mechanisms to achieve interoperability at one layer implies the existence of effective interoperability across the value chain. This has particular relevance for the governance of the IoT where the magnitude of the consumer value will depend not only on the connection between objects (i.e., infrastructural interoperability), but also on their ability to read each other's data structures and concepts (semantic and syntactical interoperability), the possibility for consumers to export those data to yet other technological platforms (data portability), as well as the ability to transfer and render useful data across systems *without incurring legal liability* for accessing and processing those data (legal interoperability). Both legal and technical constraints must be taken into account for the attainment of the more comprehensive notion of "effective" interoperability.

For a computer program to be interoperable with another, the code must contain specific information, which companies might withhold from competitors, consumers and potential developers in an anticompetitive fashion. Relatedly, companies can protect that information as intellectual property, preventing third parties from relying on it for their computer programs or imposing royalties in exchange for its use. In particular, interoperability information can be protected through a patent, copyright, or a trade secret. Intellectual property (in particular, copyright and database protection) can also be used to control the use in an IoT application of data or data structures taken from another.

A third source of rights and obligations is data protection law, which determines the legal basis on which information can be extracted and re-utilized, the conditions attached to such use, and the rights of data subject to request and transfer such data. This body of law could be analyzed in parallel to sector-specific data access regimes¹⁵⁵⁵, the regulation on the free flow of non-personal data, and the regulatory framework for on open data and the re-use of public sector information. As we suggested in Chapter 4, with regard to the promotion of competition in digital markets, enhancing interoperability, and consequently promoting competition through market contestability, may be better achieved through a toolkit approach that would combine different regulatory frameworks.

One may also note an expansion of the use of the term interoperability beyond hardware, APIs and software. Some have also made suggestions as to the interoperability

1554 A mention should be made of another category of interfaces, which was briefly touched upon in the description of lower layer interoperability: the so called "communication interfaces", which connect the upper layer to the lower layer through standard languages such as the above-mentioned HTTP, SMTP, IMAP and POP3.

1555 See in this regard also I. Graef, M. Husovec & J. van den Boom, Spill-overs in data governance: the relationship between the GDPR's right to data portability and EU sector-specific data access regimes, TILEC Discussion Paper 2019-005; O. Borgogno & G. Colangelo, Data sharing and interoperability: Fostering innovation and competition through APIs, (2019) Computer and Security Law Review 105314.

of *data*, or the formats by which platforms make data available. Max Planck has issued a policy statement that interoperability of data formats and standardization very probably will increase the value of data¹⁵⁵⁶.

Issues of interoperability will certainly arise in the context of cloud computing platforms. The leading platforms (Google, Apple, Microsoft) offer vertically integrated services to their cloud computing infrastructure. Adding applications contributes to locking users into the platform.¹⁵⁵⁷ Interoperability can vary from setting harmonized cloud standards and architectures to forcing common interfaces.¹⁵⁵⁸ An important issue for competition authorities considering acting in this market is timing. Interoperability yields the greatest benefits in mature markets. Imposing it at an early stage of market development may deter investments and the incentive to innovate.¹⁵⁵⁹ While app developers might prefer ease of interoperability between platforms, the platforms force them to expend additional resources above minimal copying to integrate the service into a distinct setting. That effort costs additional resources, yet it creates additional chances to innovate that otherwise might not exist.

The burden also forces app developers to contribute to differentiating each platform. Since cloud computing is a scale service, and at least storage is a fungible service, the greater variety could enhance surplus for a subsection of clients and the platform.

Nevertheless, the platforms are seeking to increase switching costs and strengthen the lock-in effect. Existing antitrust tools can guide initial enforcement efforts, starting with market share. Entry barriers do not concern antitrust authorities until market share reaches a certain threshold. App developers still can reach consumers by complying with system terms. The primary anticompetitive effect in this context relates to higher prices that consumers may pay because of the absence of interoperability.

The timing issue implicates both market tipping and competition in innovation between platforms. A tipping point represents an unalterable junction in the competitive process: Intervening after that point both may prove fruitless and multiply costs to society in terms of sunk costs, innovation incentives, and administrative costs. A cautious approach to enforcement argues in favour of intervening sooner rather than later. Sustaining a dominant market share for more than a year or two in a network market may eliminate the opportunity for other platforms to compete. App developers may continue to write novel algorithms to evaluate information, but consumers will not gain from price competition if only one cloud service provider dominates a market. Certainly, the incentive to write that algorithm increases when several potential buyers exist. And more apps will run on a market with more than one buyer. Society benefits from more

1556 J. Drexel et al., Data Ownership & Access to Data: Position Statement of the Max Planck Institute for Innovation & Competition of 16 Aug. 2016 on the Current European Debate, Research Paper No. 16-10, ¶ 40 <http://ssrn.com/abstract=2833165>.

1557 M. Cave & K. Hatta, Smart devices, fixed/mobile convergence and the cloud: some medium-term regulatory challenges, in *The Smart Revolution Towards the Sustainable Digital Society*, 209, 221 (Mitomo, H., Fuke, H., Bohlin, E., eds. 2015).

1558 Ibid. at 222.

1559 Ibid. at 221-22.

apps testing consumer demand because actual market experiments always will determine welfare more accurately than projecting the value of a service.

5.4.2.7. Self-regulation and Codes of conduct on the basis of competition law principles

As many of the harmful effects that arise out of the restriction of intra-platform or vertical competition relate to the private governance by the platforms of their ecosystems, and before any attempt is made to regulate digital platforms, either through competition law or through some other form of regulation, it is important to explore possibilities of self-regulation, for instance through the development of codes of conduct, under the supervision of an ombudsman or of a specific specialised digital unit in the competition authority. This approach has been put forward by the recent Furman report, which mandated the digital markets unit to work with industry and stakeholders to establish a digital platform code of conduct, based on a set of core principles¹⁵⁶⁰. This code would apply to conduct by digital platforms that have been designated as having a strategic market status. Designing a code of conduct has also been proposed by the Japanese competition authorities¹⁵⁶¹.

The EU followed a 'co-regulatory approach' in the context of the Business-to-Platform Regulation¹⁵⁶². This legislation covers online platform intermediaries and general online search engines that provide their services to businesses established in the EU and that offer goods or services to consumers located in the EU. The Regulation excludes online advertising, payment services, search engine optimisation and services that connect hardware and applications that do not intermediate direct transactions between businesses and consumers, as well as intermediaries that operate between businesses only. The Regulation requires online platform intermediaries and online search engines to comply with legal obligations (including obligations of transparency and non-discrimination) and encourages them to take voluntary complementary steps. Online intermediation platforms have been put in place in order to set up an internal complaint handling system that would allow businesses to lodge complaints directly with the platform for example, as a result of an action or decision taken by them or as a result of a technological problem. The Regulation requires platforms to respond to complaints appropriately and communicate the outcome to businesses. The Regulation also provides organisations and associations representing business users' interest to take action before competent national courts to stop or prohibit non-compliance with the Regulation.

The Regulation relies on private enforcement and ADR. This is also justified by the fact that, contrary to the UK code of conduct, it applies to all platform intermediaries, the entire online platform economy in the EU with approximately 7000 online platforms

1560 Furman Report, 138, Recommended Action 1.

1561 see Japan Fair Trade Commission, Interim Discussion Paper: Improvement of Trading Environment surrounding Digital Platforms (December 2018), 6-8.

1562 Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services, (2019) OJ L 18657.

or market places operating in it –which include Big Tech, as well as very small start-ups, without any condition relating to the market power or the strategic position of the platform, although some of the Recitals of the Regulation make reference to asymmetrical bargaining power or superior bargaining power¹⁵⁶³. This shows that for the EU legislator this framework (ADR-based and in some cases private enforcement-based) is complementary to competition law enforcement, which can focus on situations in which there may be harm to consumers, the competitive process and more generally the public interest. Such combination of self-regulation or co-regulation with the enforcement of competition law in situations of horizontal or vertical power may seem a preferable option, also for BRICS countries.

5.4.2.8. Competition by design

‘Competition by Design’ constitutes a proactive approach that undertakings might take to address antitrust problems in markets where algorithms influence competition. It forces programmers to implement competition law principles into the design of algorithms.¹⁵⁶⁴ The concept derives from Article 25(1) of the EU General Data Protection Regulation (GDPR) that sets-out data protection by design.¹⁵⁶⁵ The objective motivating the idea is to prompt the best efforts of undertakings to comply with competition values without imposing a specific technological path.¹⁵⁶⁶

In the general context of law, undertakings may need to convert statutory or common law principles into simple rules quantifiable in code.¹⁵⁶⁷ Alternatively, machine learning may be able to detect patterns in legal decisions. Machine learning functions by searching the most predictive inputs to construct a path to the correct output.¹⁵⁶⁸ With algorithms gaining greater prominence in societies, antitrust authorities may need to mandate welfare maximizing objectives in different contexts, for instance, economic activity for search algorithms. Undertakings at least may institute a two-tier review process, with algorithms first screening proposed decisions.¹⁵⁶⁹ Another method of operation, relating directly to consumers, might involve displaying information about how a dominant platform complies with its special responsibility for particular functions.¹⁵⁷⁰

Competition by design has strengths and weaknesses, and thus uncertain prospects.

1563 Recitals 2 & 23 when explaining the ratio legis of the Regulation. These are not however operationalised as conditions for the application of the Regulation in specific cases.

1564 S. Vezzoso, Competition by Design, pp. 17-18 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2986440.

1565 Ibid., 6.

1566 Ibid., 23.

1567 D. L. Burk, Algorithmic Fair Use, 86 Univ. of Chicago L. Rev. 283, 304 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3076139.

1568 A. Deng, From the Dark Side to the Bright Side: Exploring Algorithmic Antitrust Compliance, p. 9 (2 June 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3334164&download=yes.

1569 N. Elkin-Koren, Fair Use by Design, 64 U.C.L.A. L. Rev. 1082, 1098-99 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3217839.

1570 S. Vezzoso, Competition by Design, pp. 17-18 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2986440, 28.

The chief weakness consists of viability. Competition law can consist of imprecise contextual orders and standards.¹⁵⁷¹ Algorithms may not have the sophistication to determine how a decision impacts a market.¹⁵⁷² Undertakings engaging in activities that do not reduce to automation could incur penalties at a greater frequency.¹⁵⁷³ Undertakings may have different capabilities in terms of hardware to execute the coded precepts of competition law, creating entry barriers. The obligation will add to marginal costs and inhibit the technology from spreading.¹⁵⁷⁴ Competition by design may, on the other hand, enable competition authorities to condemn anticompetitive conduct, the leading example being tacit collusion, previously out of reach.¹⁵⁷⁵

Regulation Technology (Reg Tech) may enhance competition by design. It features software following regulatory information across jurisdictions that attempts to measure the impact regulatory changes may have on a company, including the risk to profitability. Reg Tech notifies the responsible parties within organizations, and recommends state of the art responses.¹⁵⁷⁶ One may imagine the possibility of developing RegTech as an instrument of enhancing compliance, by automating the process of competition law screening of algorithms, smart contracts and possible other code-able business conduct through RegTech algorithms and machine learning tools developed by competition authorities, either internally or in cooperation with external partners (e.g. Universities, companies). Such initiatives may be first tried through pilot projects and then generalised in specific areas of competition law enforcement involving in particular types of conduct for which the current state of AI may handle with relative accuracy. Although the process cannot be automated 100%, and would still need some human input, it could augment the current capabilities of competition authorities and may also enable a better (more accurate) filtering of possible anticompetitive conduct to be examined more thoroughly by dedicated teams at a later stage.

5.5. Enforcement statistics – digital antitrust in BRICS countries

We have collected and coded 236 merger cases and 109 antitrust infringement cases dealing with the digital economy across the five BRICS jurisdictions over the period 2008-2019. We have coded 28 merger cases from South Africa, 2 merger cases from

1571 Ibid., 25.

1572 D. L. Burk, Algorithmic Fair Use, 86 Univ. of Chicago L. Rev. 283, 304 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3076139, 292.

1573 S. Vezzoso, Competition by Design, pp. 17-18 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2986440, 26.

1574 D. L. Burk, Algorithmic Fair Use, 86 Univ. of Chicago L. Rev. 283, 304 (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3076139, 300.

1575 A. Deng, From the Dark Side to the Bright Side: Exploring Algorithmic Antitrust Compliance, p. 9 (2 June 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3334164&download=yes p. 6.

1576 How Reg Tech Can Transform Your Regulatory Compliance, Thompson Reuters, <https://legal.thomsonreuters.com/en/insights/articles/how-regtech-can-transform-your-regulatory-compliance>. G. Evans, How Our New Reg Tech Solution Can Help Compliance Professionals, Refinitiv (13 Feb. 2017), <https://www.refinitiv.com/perspectives/regulation-risk-compliance/new-regtech-solution-can-help-compliance-professionals/>.

Russia, 9 merger cases from India, 5 merger cases from China, 188 merger cases from Brazil. We have coded 5 infringement cases from South Africa, 10 infringement cases from Russia, 45 infringement cases from India, 32 infringement cases from China, and 17 infringement cases from Brazil.

5.5.1. Aggregate BRICS

The statistical patterns illustrated here provide insight into the enforcement priorities so far of the BRICS competition authorities.

5.5.1.1. Aggregate BRICS mergers

Figure 5.1: Distribution of supply chain types – BRICS aggregate mergers

Figure 5.1. illustrates the distribution of supply chain types in all merger cases concerning the digital markets in the BRICS countries. Most merger cases concerned the data processing, followed by data sharing, data generation and data commercialization, and lastly data storage.

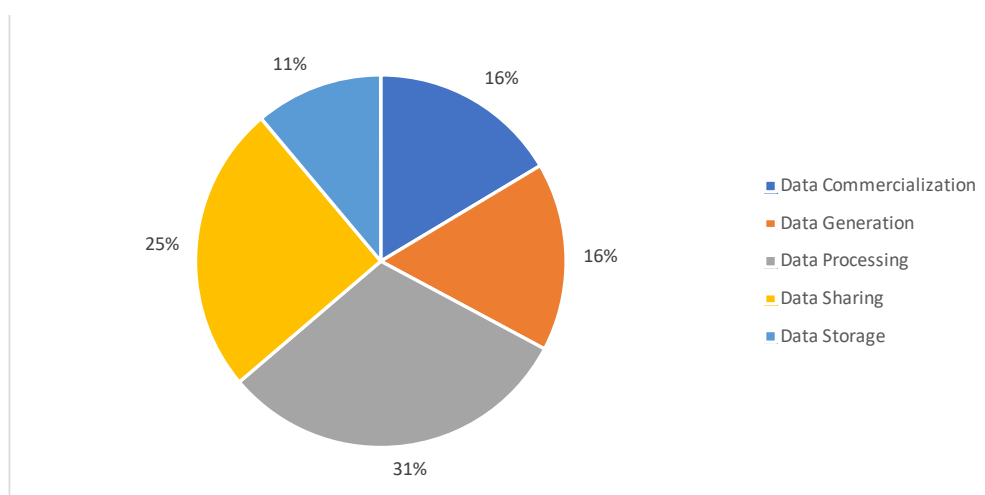
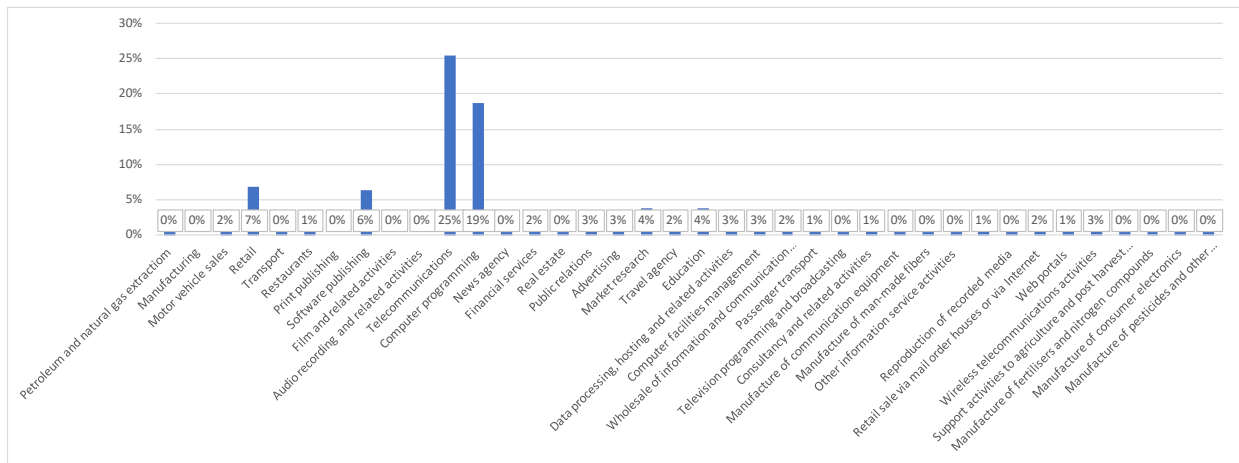


Figure 5.2.: Distribution of products – BRICS aggregate mergers

In figure 5.2., the merger cases in the BRICS countries concerning digital markets are classified according to the sector involved. By far the greatest number of mergers involved the telecommunications sector, followed by computer programming. Otherwise, merger activity was distributed widely among sectors, with no other single sector breaking 10 per cent of total mergers.



5.5.1.2. Aggregate BRICS infringements

Figure 5.3.: Distribution of supply chain types – BRICS aggregate infringements

Figure 5.3. describes the distribution of infringement cases (antitrust) concerning the digital markets in all BRICS countries combined according to the level of the supply chain involved, with firms involved in data generation responsible for the most infringements, followed by data sharing, data commercialization, data sharing, data communication and lastly, data storage.

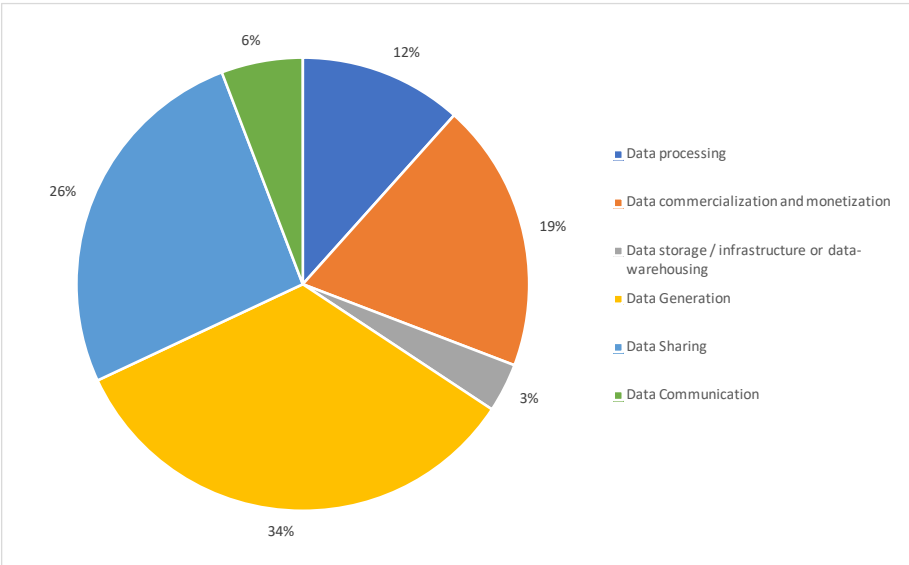


Figure 5.4.: distribution of sectors – BRICS aggregate infringements

Figure 5.4. describes the aggregate BRICS infringement cases categorised according to sector. Similar to the trends seen in mergers, the largest sectors are computer programming and telecommunications (wired and wireless).

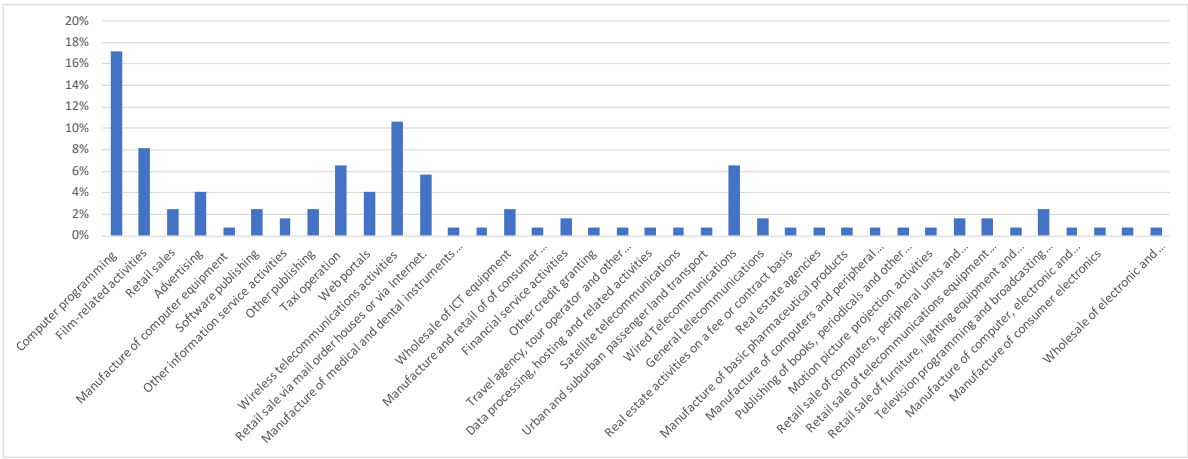


Figure 5.5.: distribution of infringement types by sector – BRICS aggregate infringements

Figure 5.5. describes the various infringement types for each sector in the aggregate BRICS food sector infringement cases. While there is substantial variety among sectors, abuse of a dominant position cases are prevalent in most of the product categories, with cartels also present in a notable minority of instances. The more atypical infringement types (e.g. business defamation) stem from the Chinese jurisdiction.

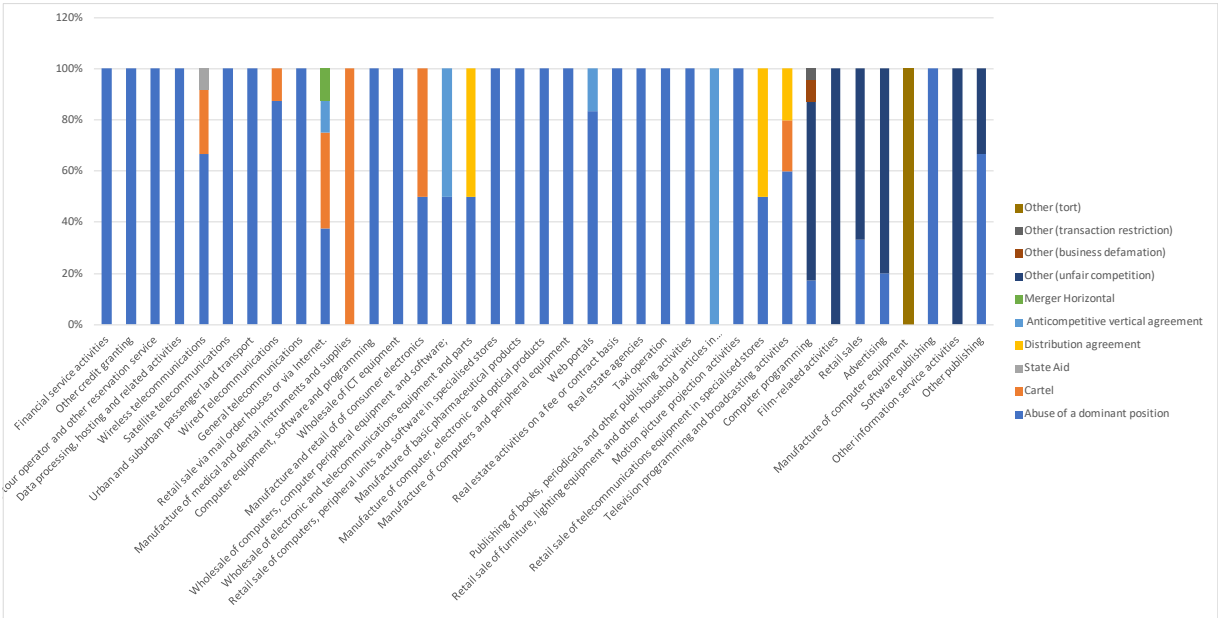


Figure 5.6.: proceedings by infringement type – BRICS aggregate

Figure 5.6. notes the infringement proceedings in the BRICS countries according to the type of infringement. Reflecting figure 5.5., the primary reason for starting infringement proceedings has been abuse of a dominant position.

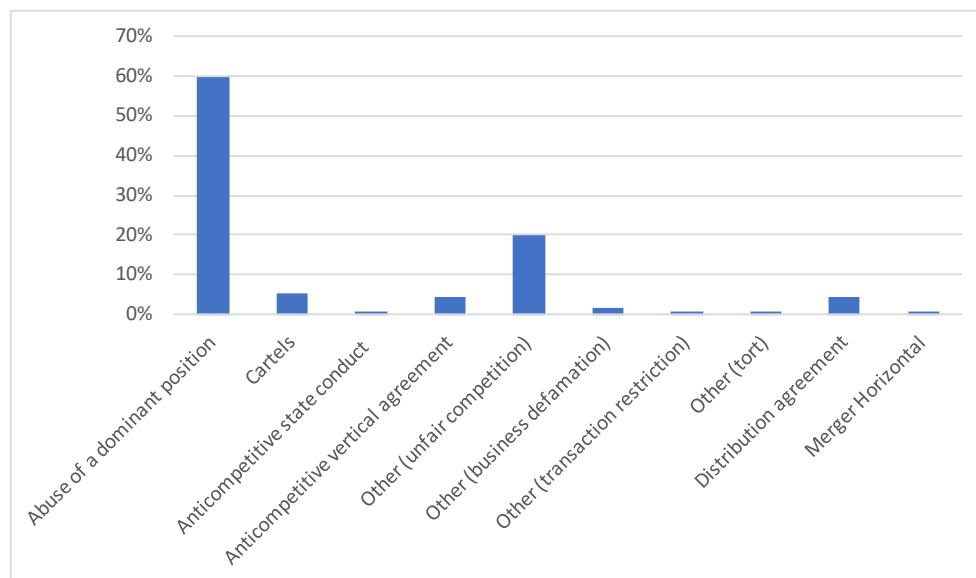
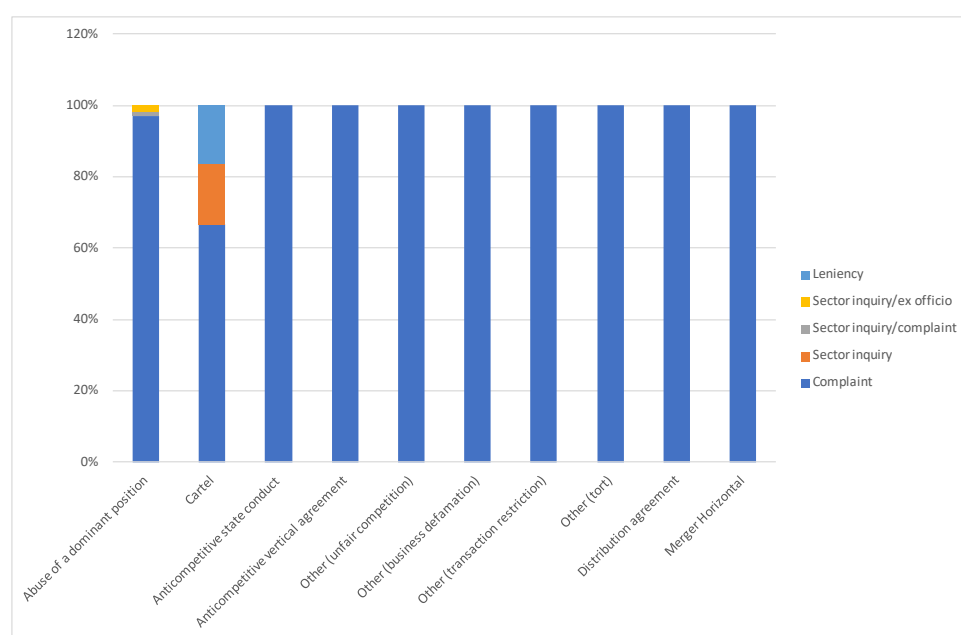
**Figure 5.7.: distribution of reasons for proceeding by infringement types – BRICS aggregate**

Figure 5.7. provides a distribution of the reasons for starting infringement proceedings in the BRICS countries for each infringement type. For all types of infringements, complaints have been the most prevalent reason for starting the procedure. Cartel proceedings have also been instigated by means of sector inquiry and leniency. Likewise, abuse of dominance proceedings have been instigated by sector inquiries and ex officio.



In the following sub-sections, we replicate the figures displayed above for each of the five BRICS jurisdictions.

5.5.2. Brazil

5.5.2.1. Brazil mergers

Figure 5.8.: Distribution of supply chain types – Brazil mergers

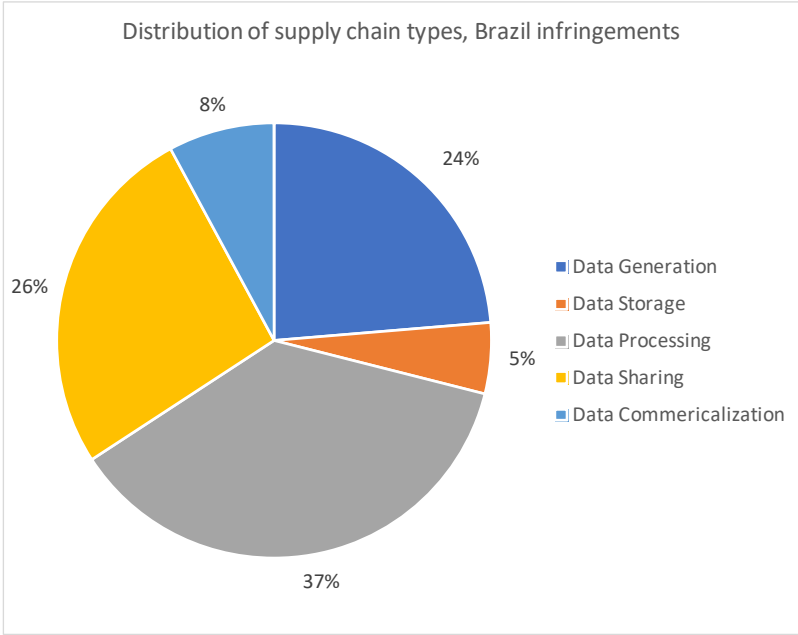
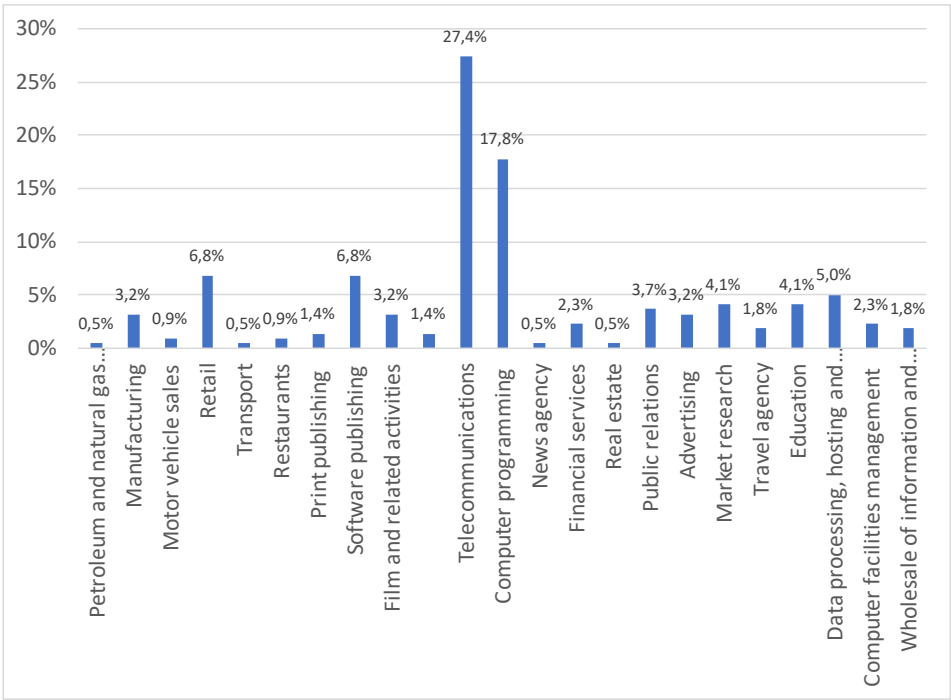


Figure 5.9.: Distribution of sectors – Brazil mergers



5.5.2.2. Brazil infringements

Figure 5.10.: Distribution of supply chain types – Brazil infringements

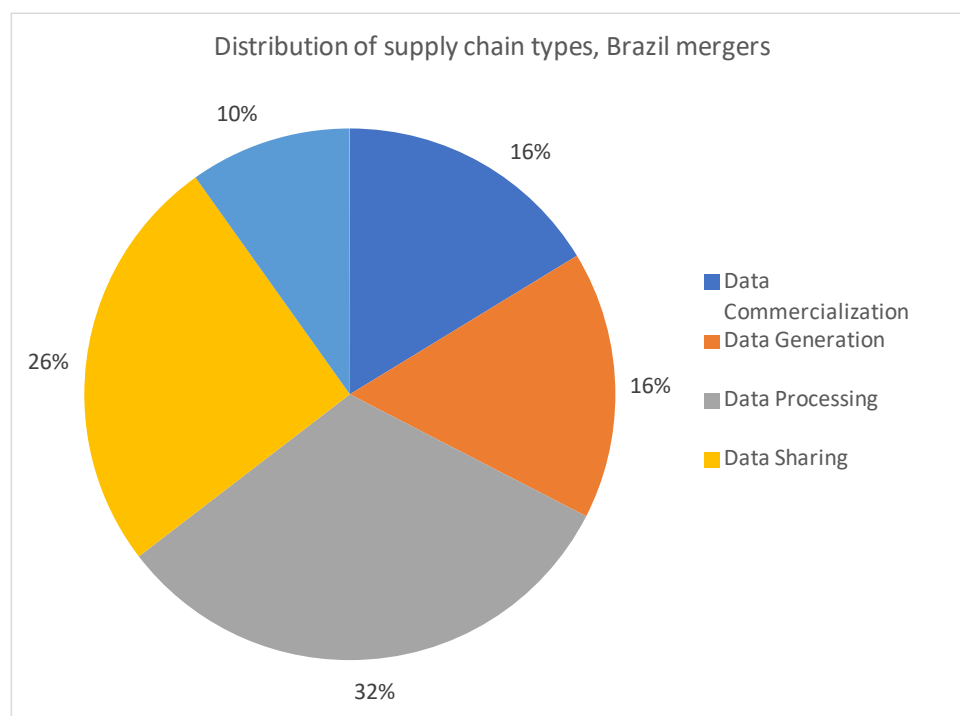


Figure 5.11.: Distribution of sectors – Brazil infringements

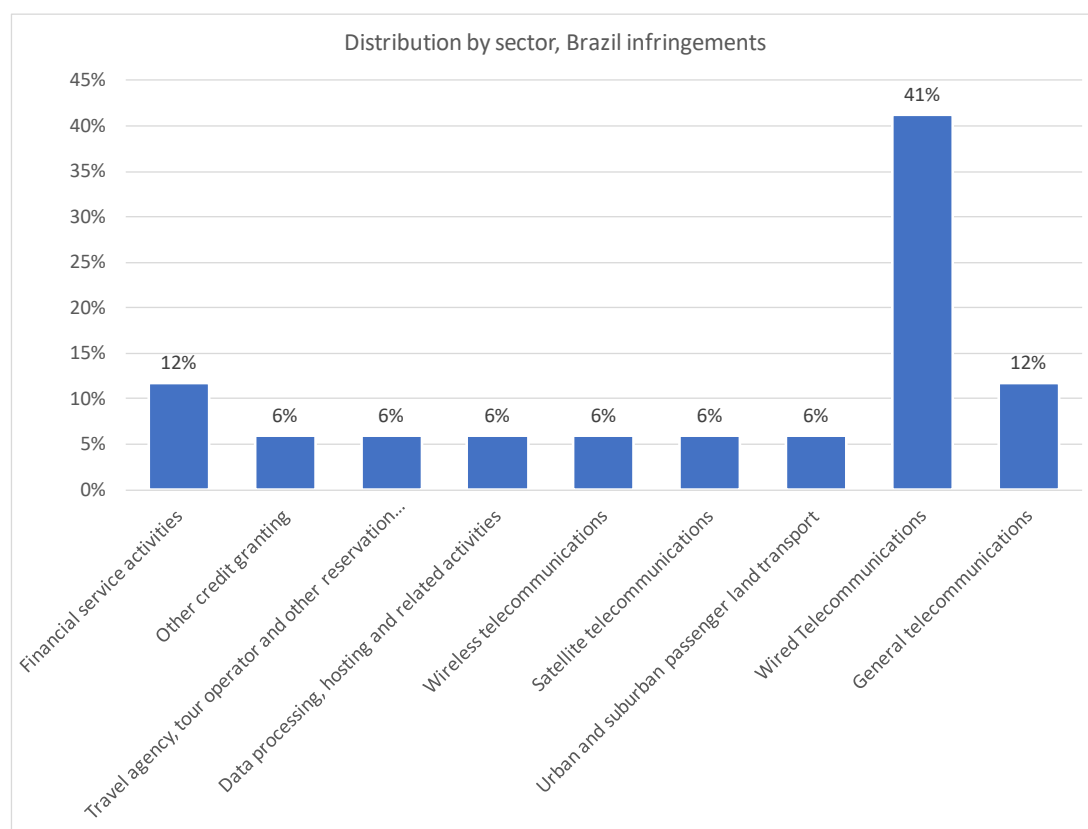


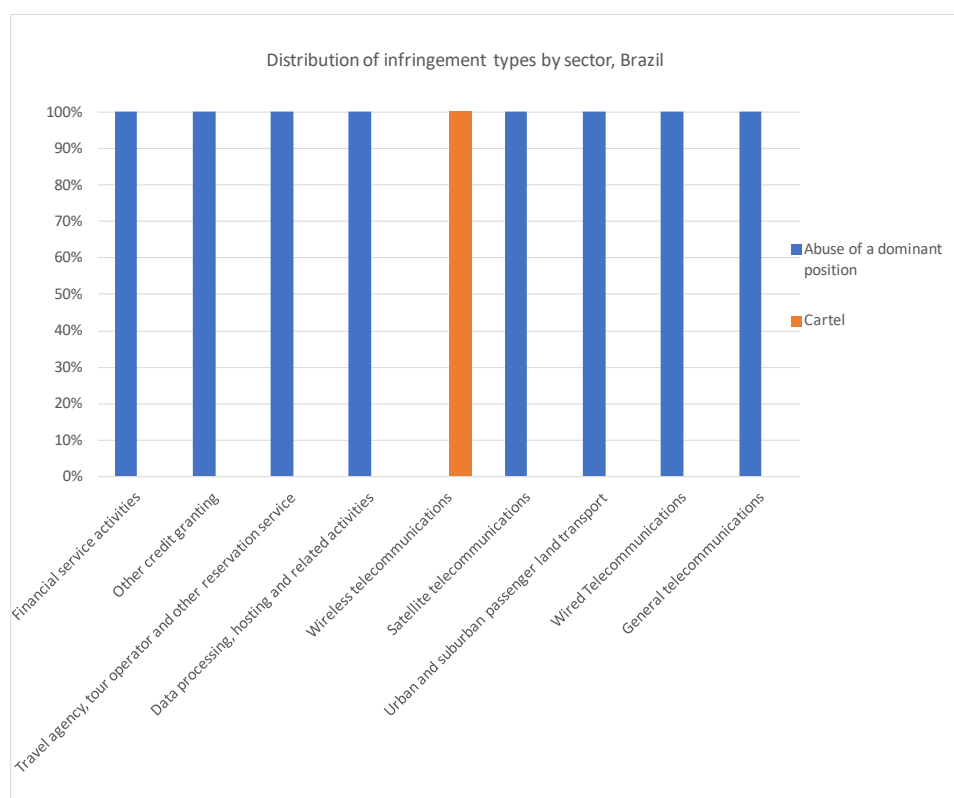
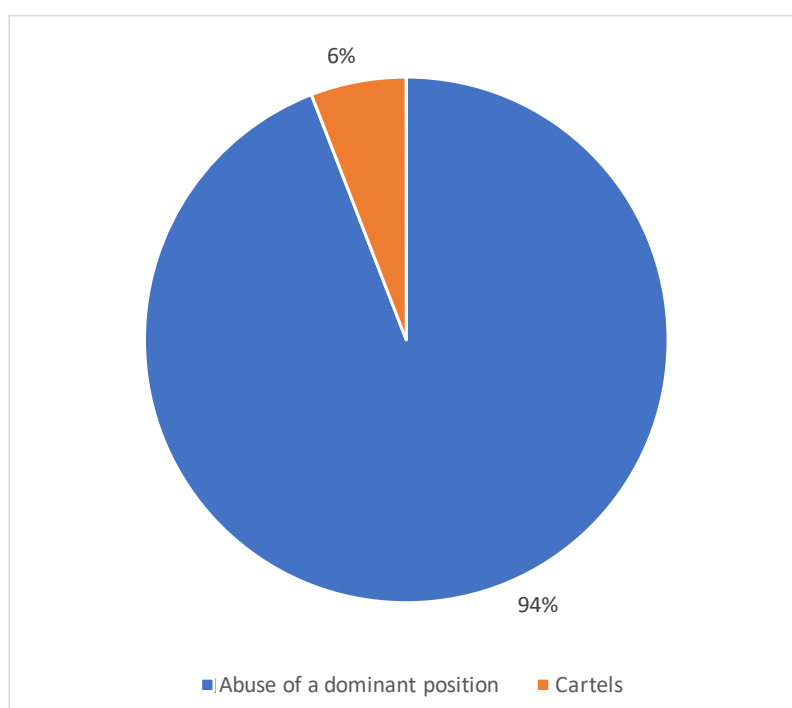
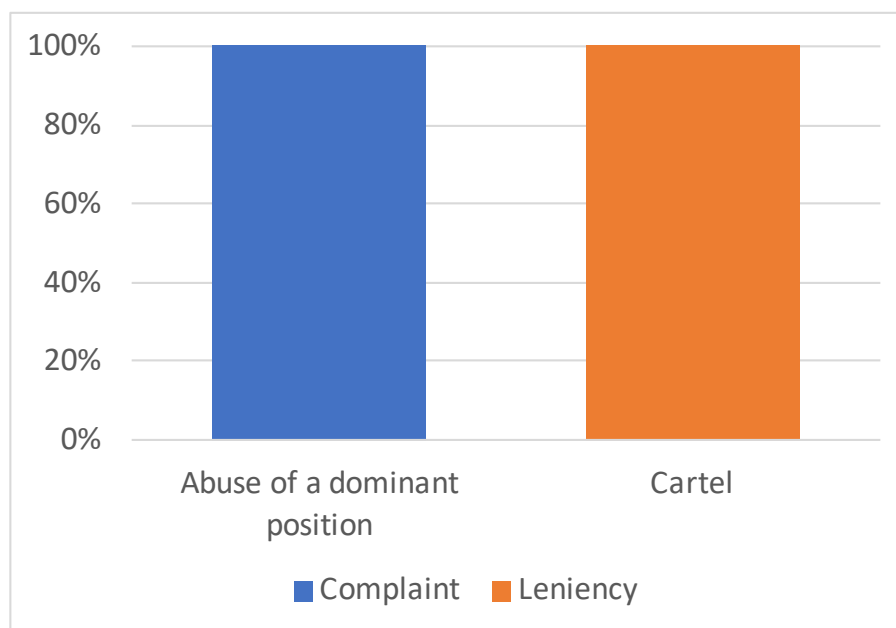
Figure 5.12.: Distribution of infringement types by sector – Brazil infringements**Figure 5.13.: Proceedings by infringement type – Brazil infringements**

Figure 5.14.: Distribution of reasons for proceedings by infringement type – Brazil infringements



5.5.3. South Africa

5.5.3.1. South Africa mergers

Figure 5.15.: Distribution of supply chain types – South Africa mergers

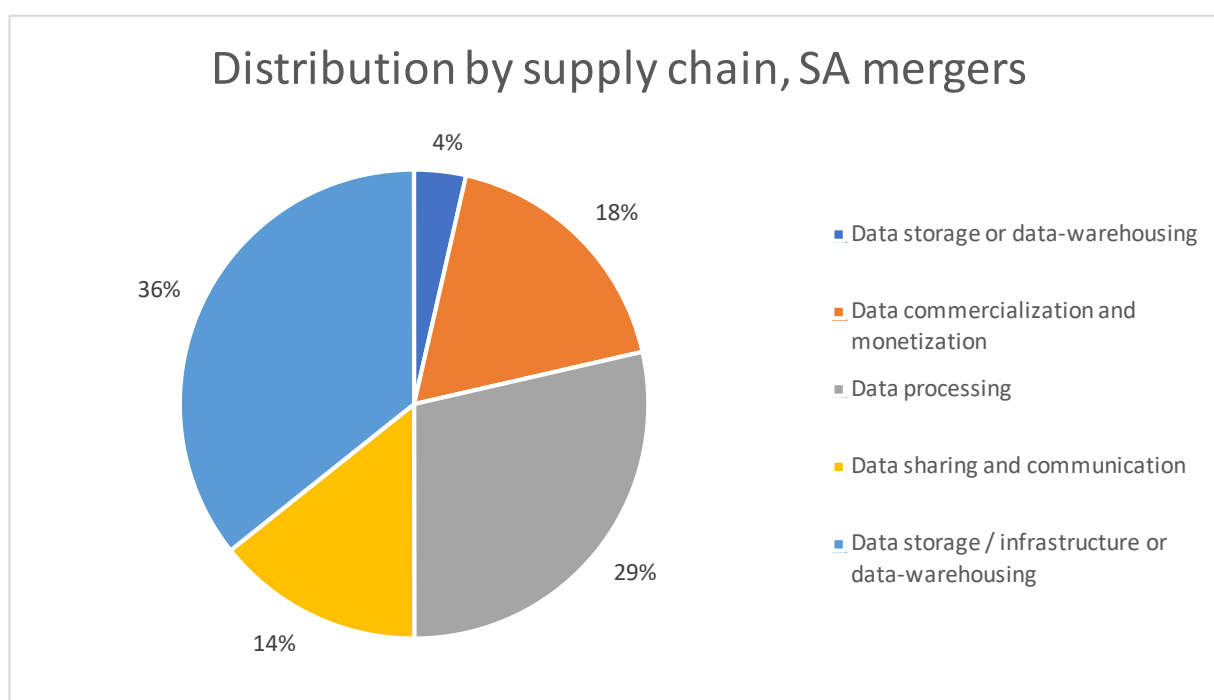
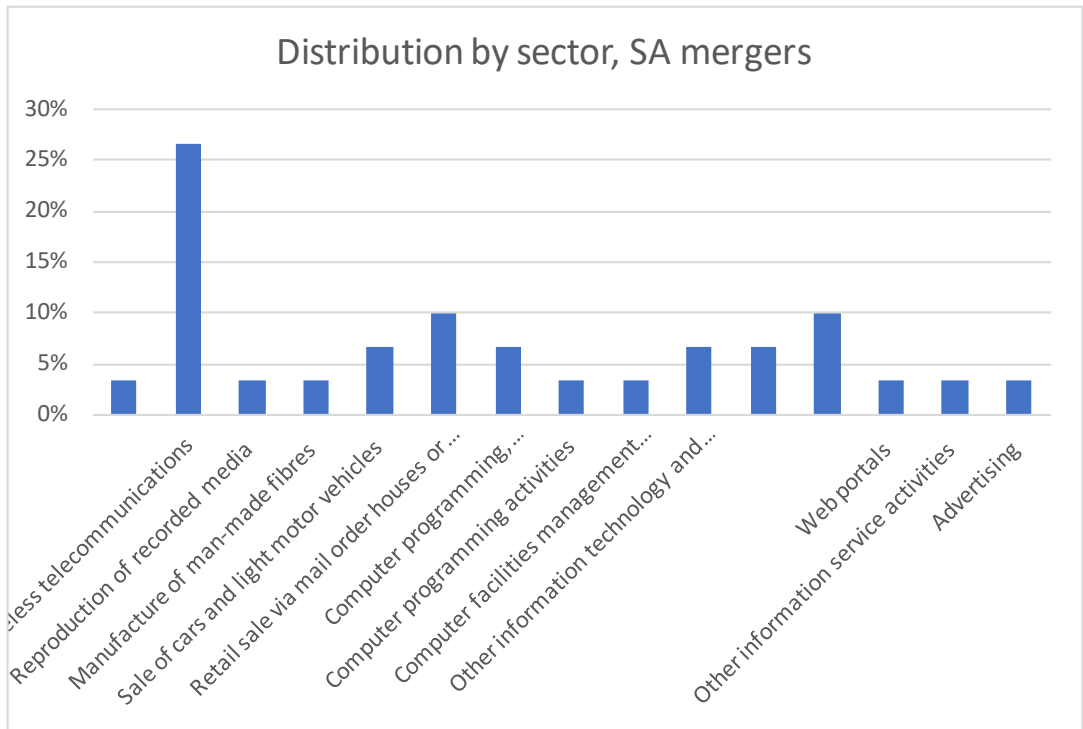


Figure 5.16.: Distribution of sectors – South Africa mergers



5.5.3.2. South Africa infringements

Figure 5.17.: Distribution of supply chain types – South Africa infringements

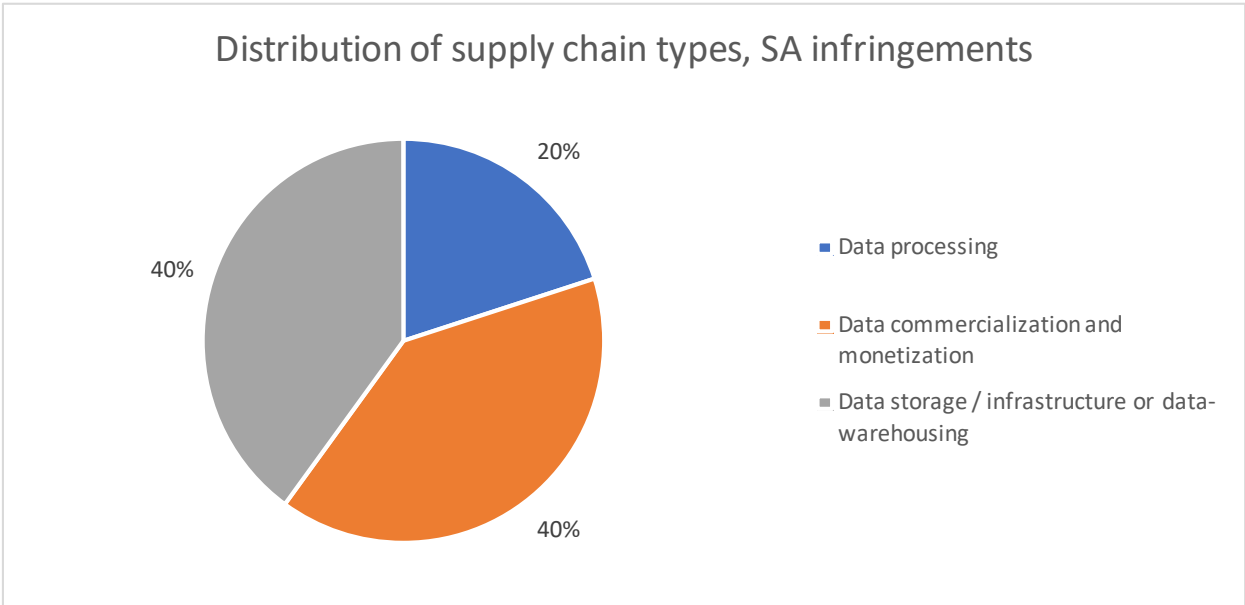


Figure 5.18.: Distribution of sectors – South Africa infringements

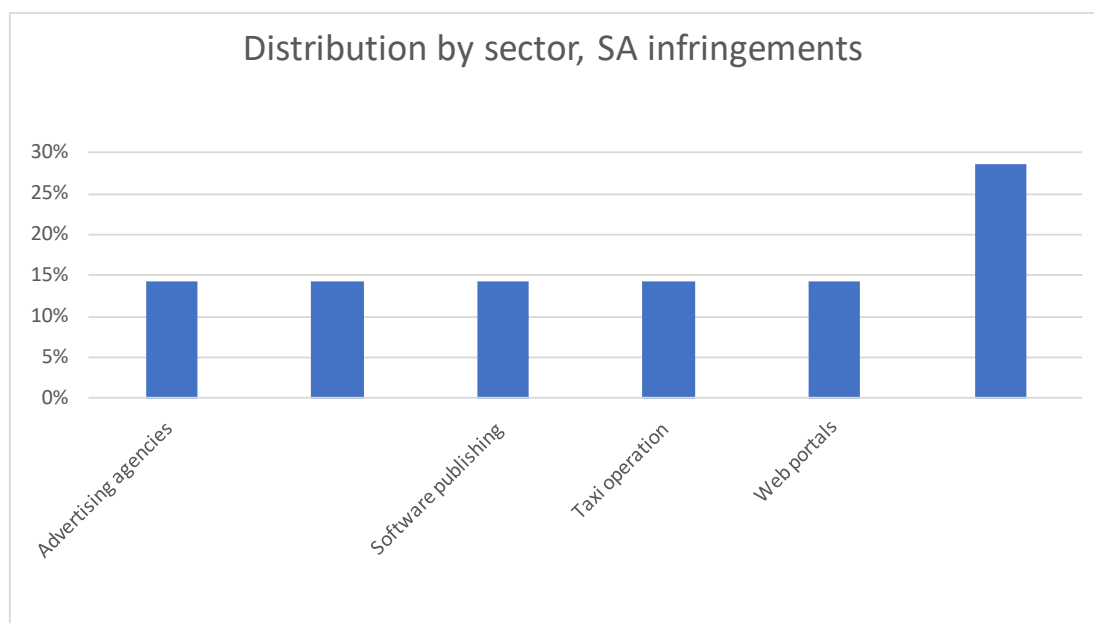


Figure 5.19.: Distribution of infringement types by sector – South Africa infringements

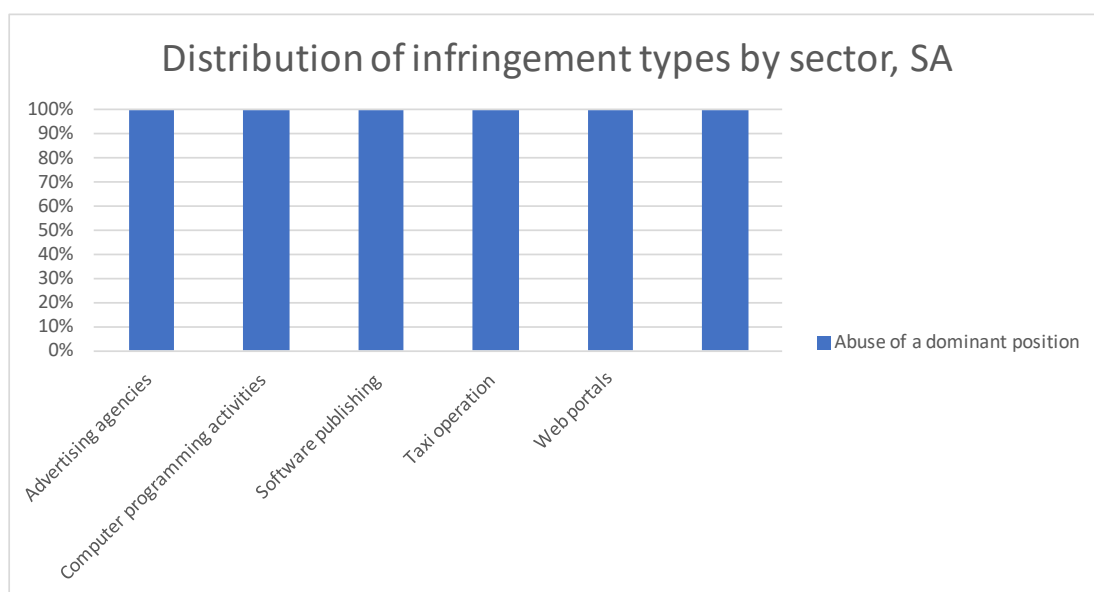
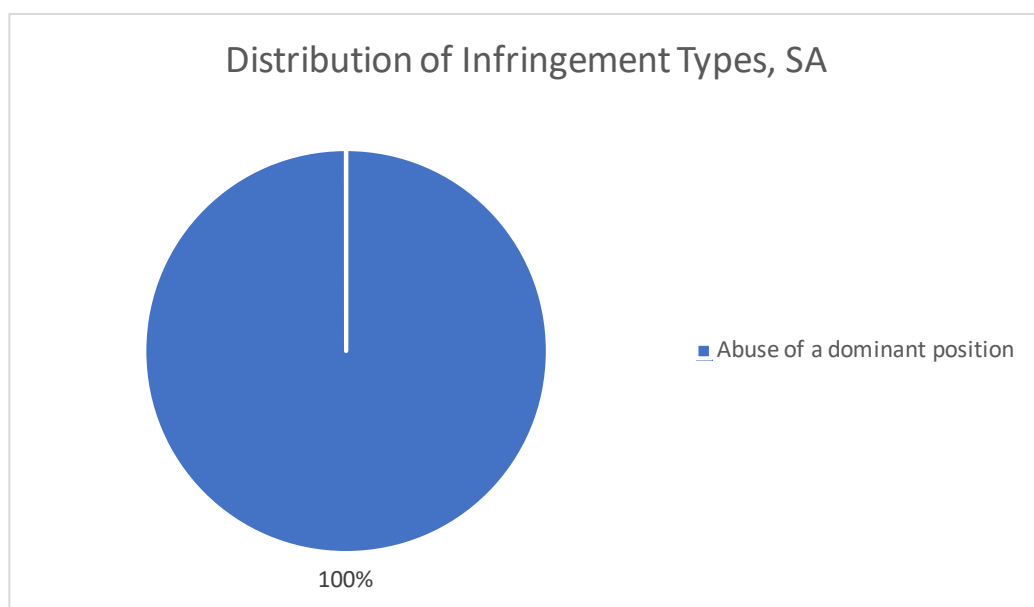
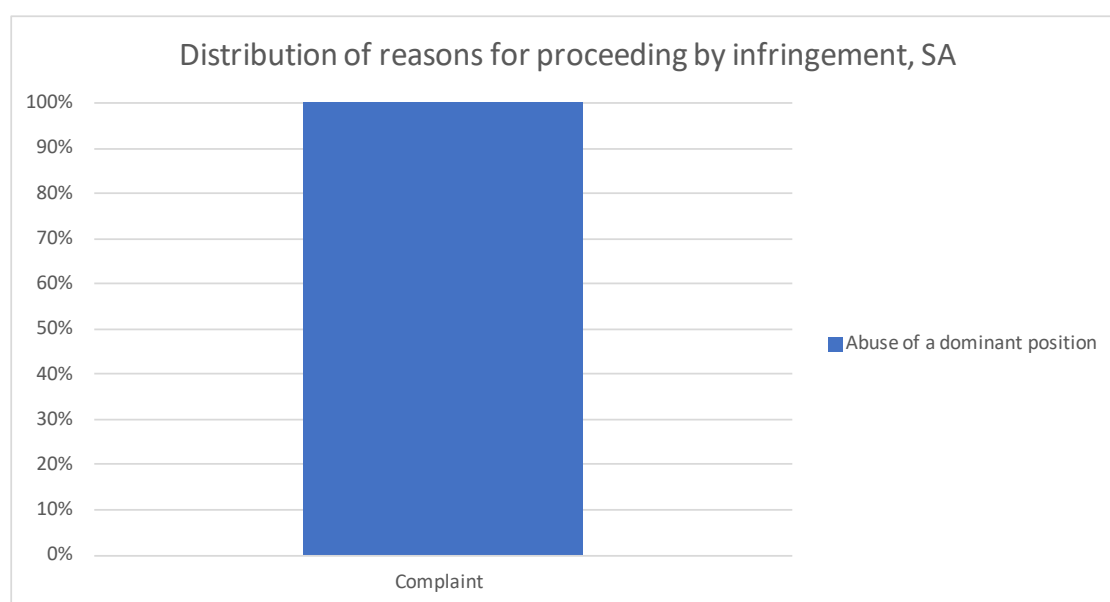


Figure 5.20.: Proceedings by infringement type – South Africa infringements**Figure 5.21.: Distribution of reasons for proceedings by infringement type – South Africa infringements**

5.5.4. Russia

5.5.4.1. Russia mergers

Figure 5.22.: Distribution of supply chain types – Russia mergers

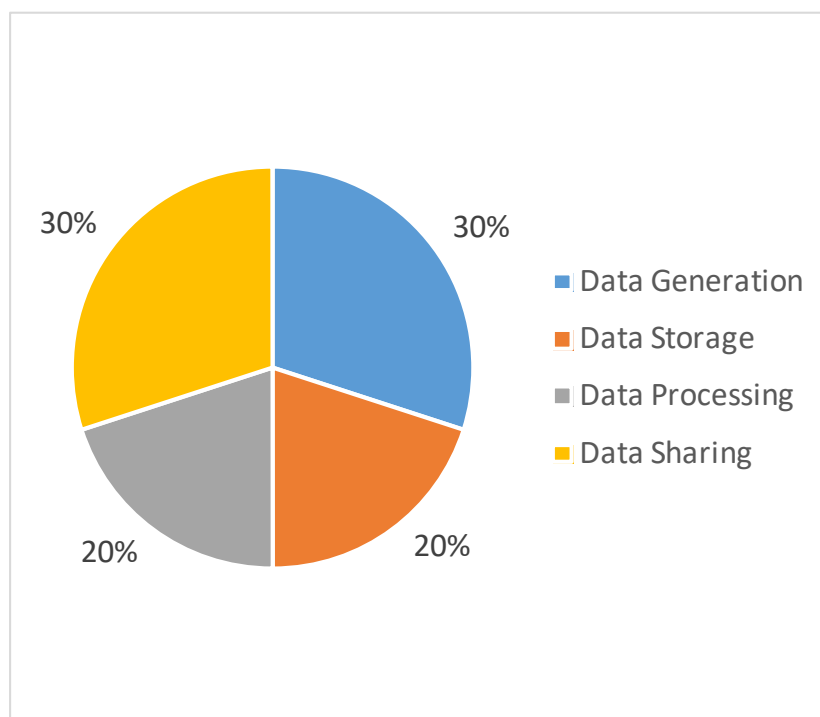
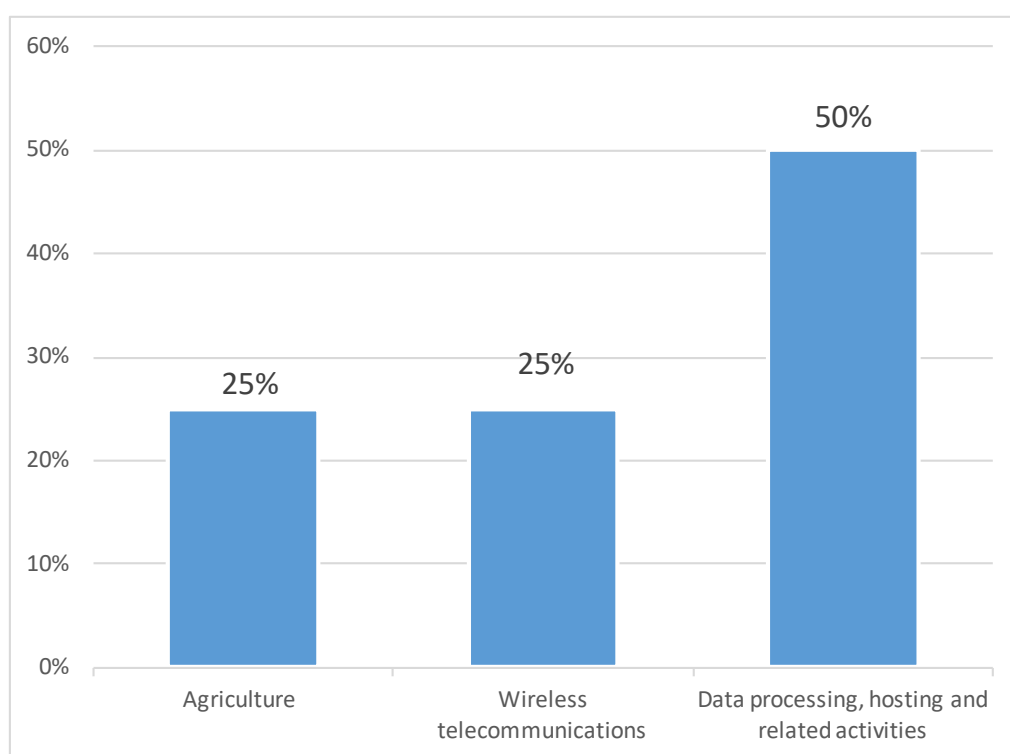


Figure 5.23.: Distribution of sectors – Russia mergers



5.5.4.2. Russia infringements

Figure 5.24.: Distribution of supply chain types – Russia infringements

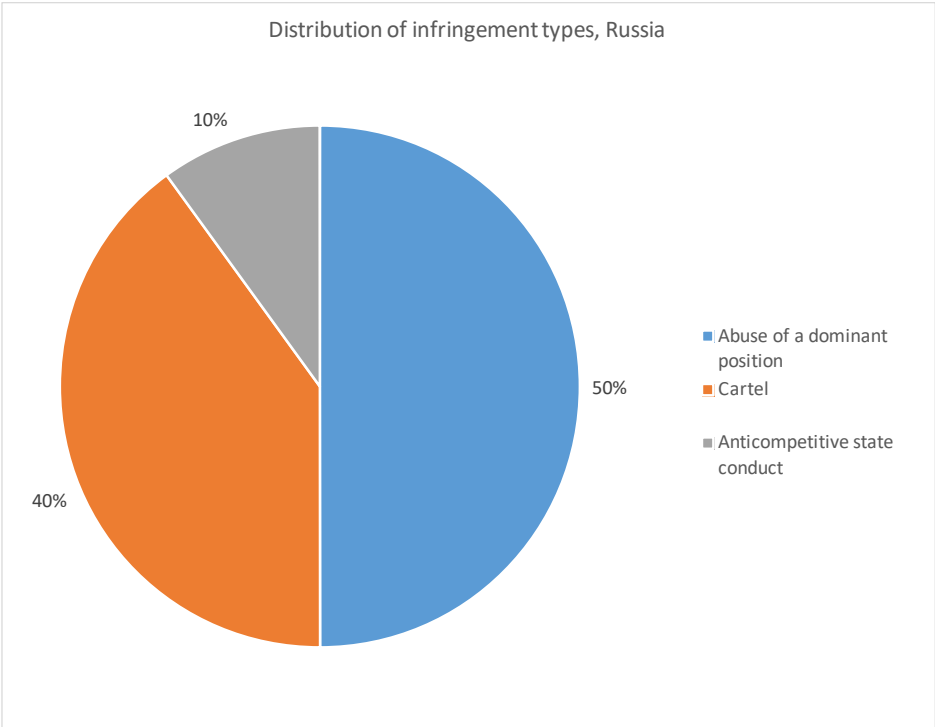


Figure 5.25.: Distribution of sectors – Russia infringements

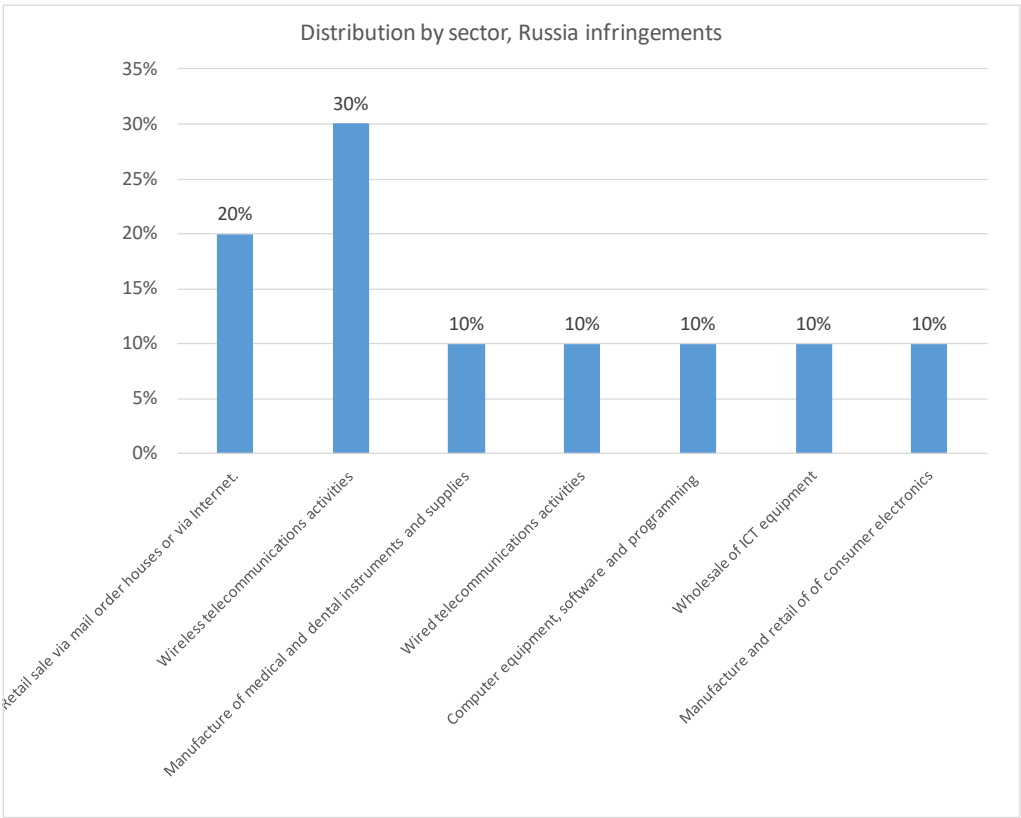


Figure 5.26.: Distribution of infringement types by sector – Russia infringements

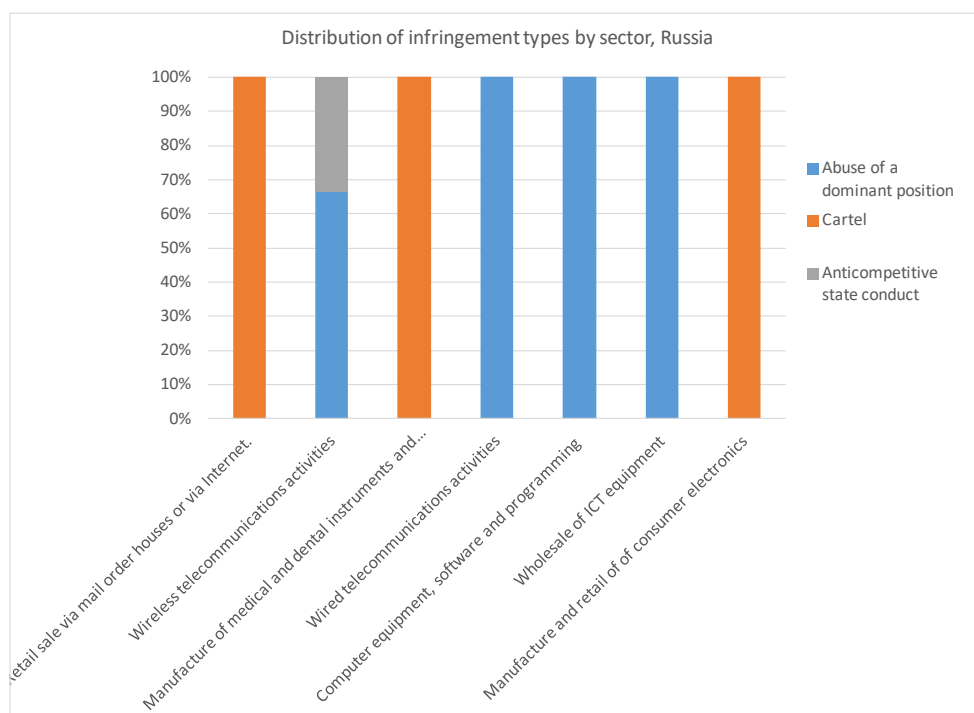


Figure 5.27.: Proceedings by infringement type – Russia infringements

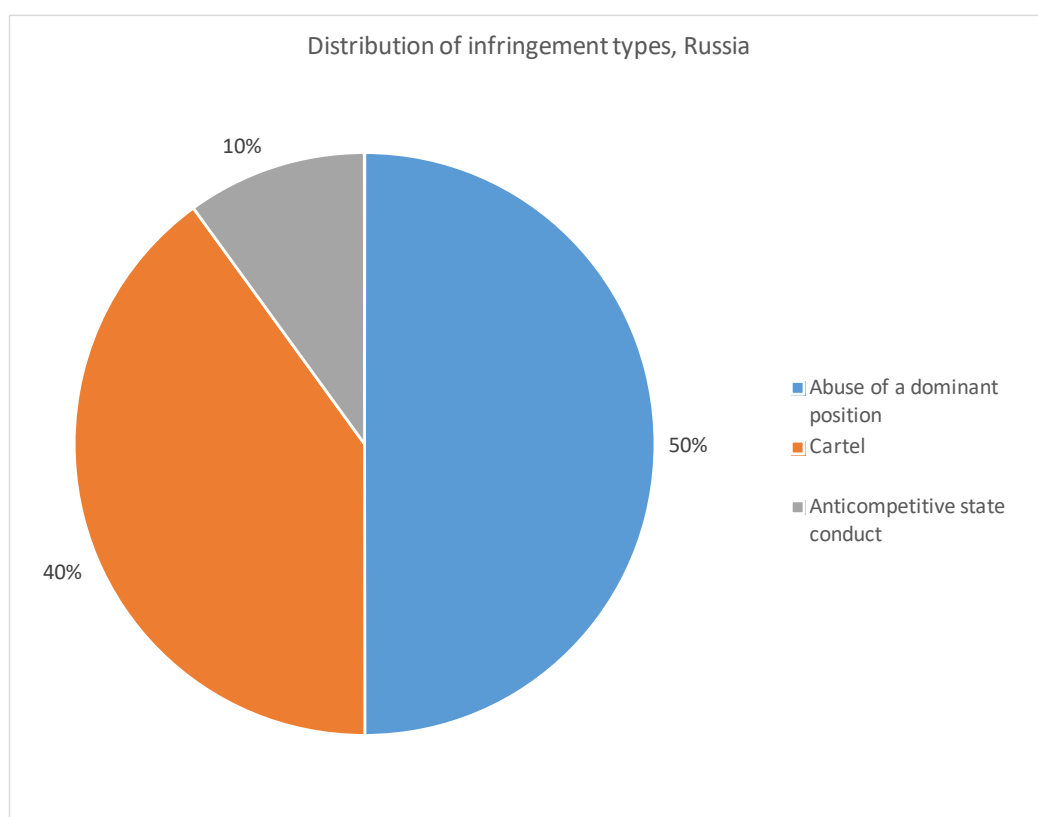
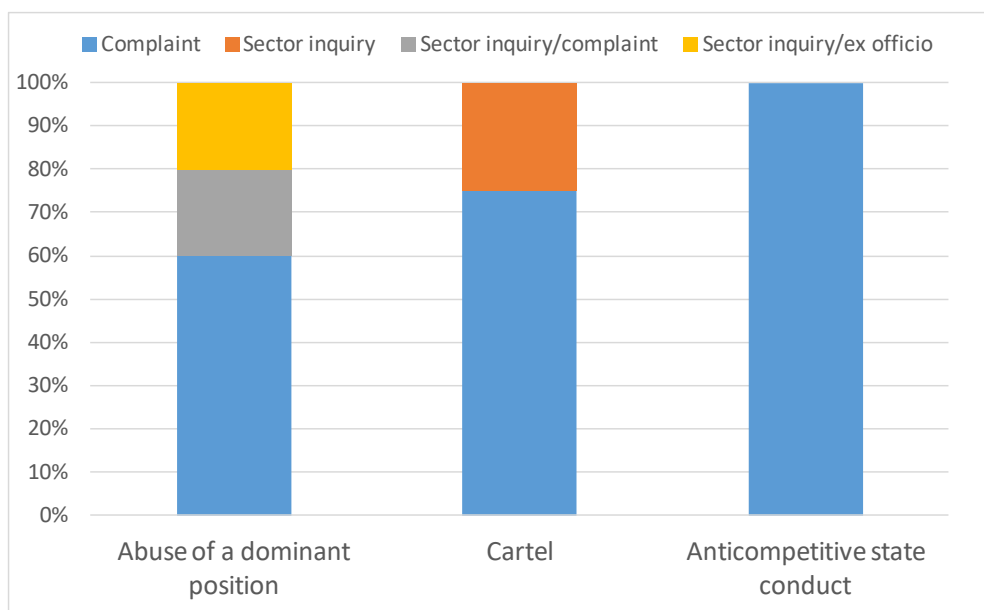


Figure 5.28.: Distribution of reasons for proceedings by infringement type – Russia infringements



5.5.5. India

5.5.5.1. India mergers

Figure 5.29.: Distribution of supply chain types – India mergers

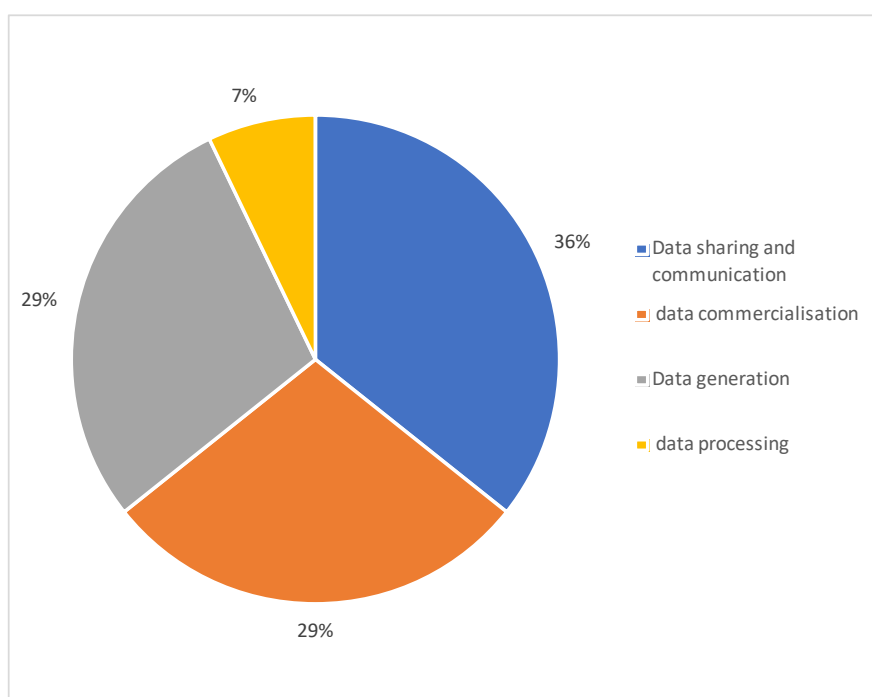
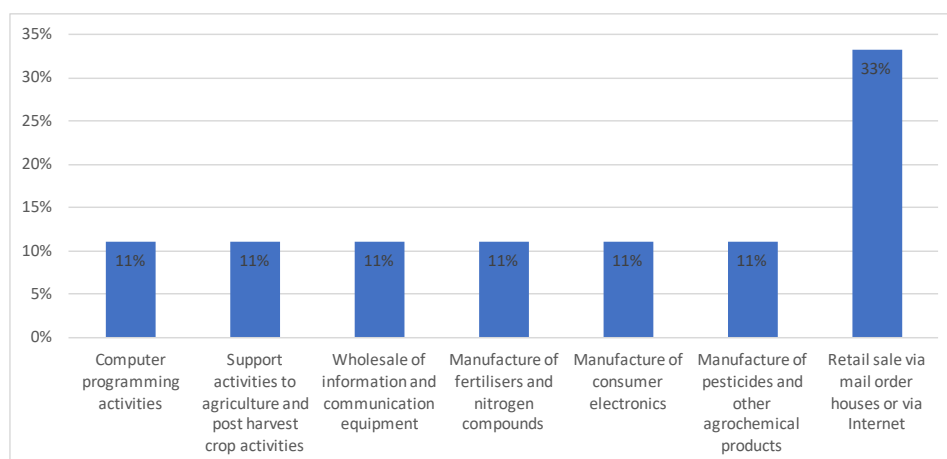


Figure 5.30.: Distribution of sectors – India mergers



5.5.5.2. India infringements

Figure 5.31.: Distribution of supply chain types – India infringements

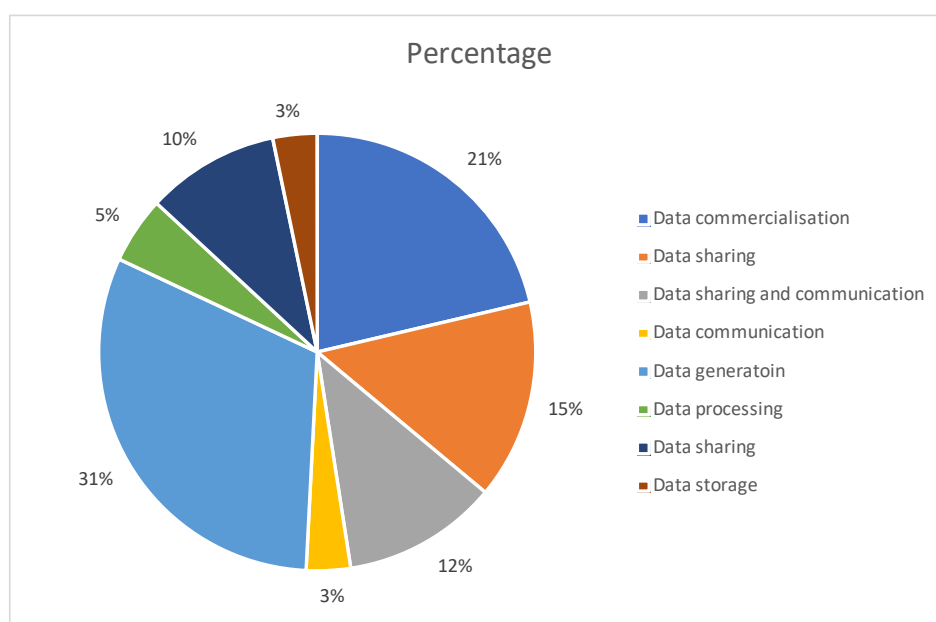


Figure 5.32.: Distribution of sectors – India infringements

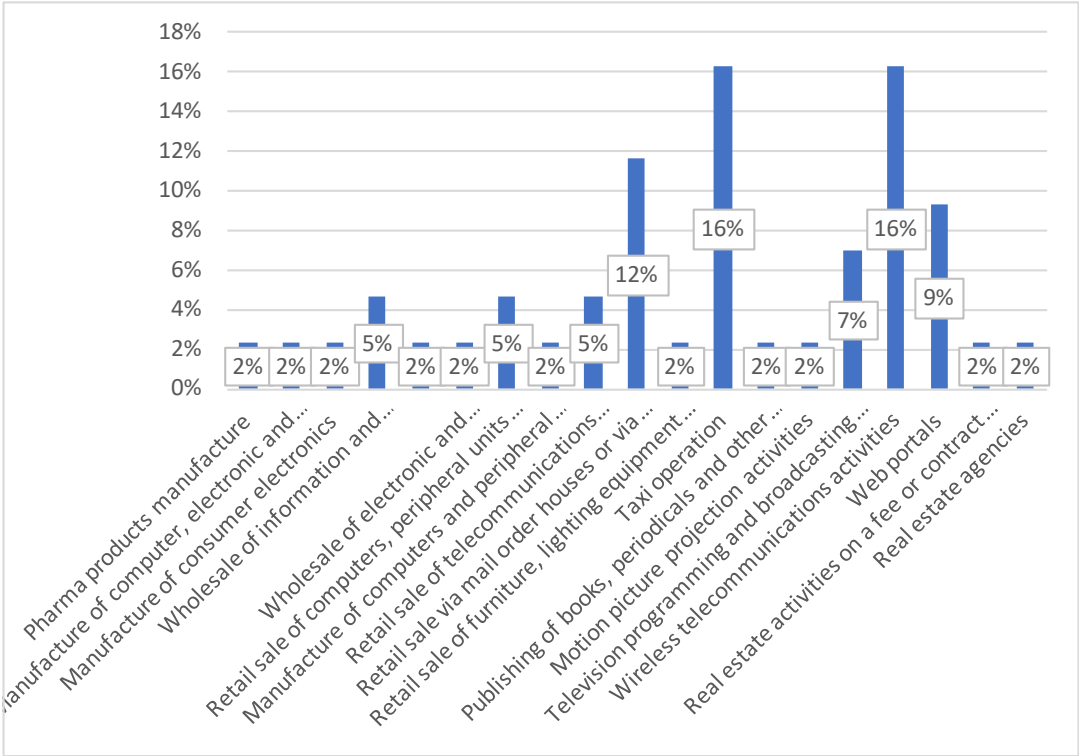


Figure 5.33.: Distribution of infringement types by sector – India infringements

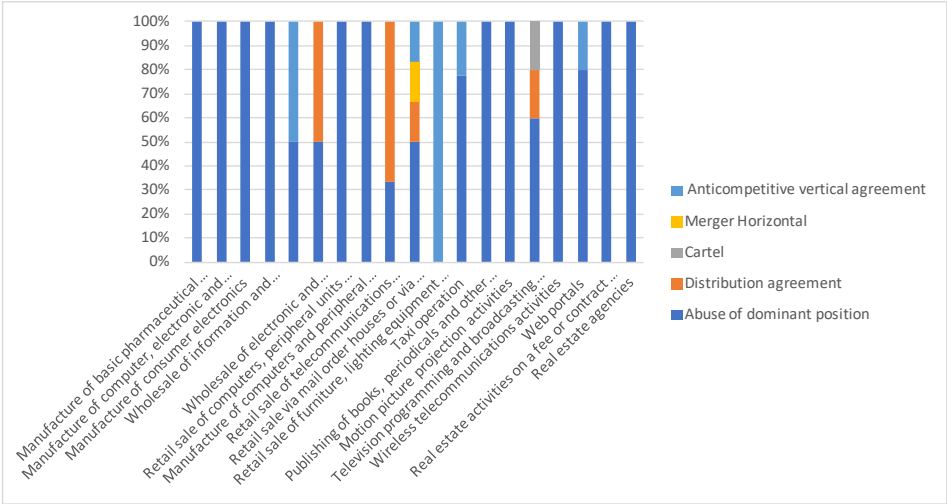


Figure 5.34.: Proceedings by infringement type – India infringements

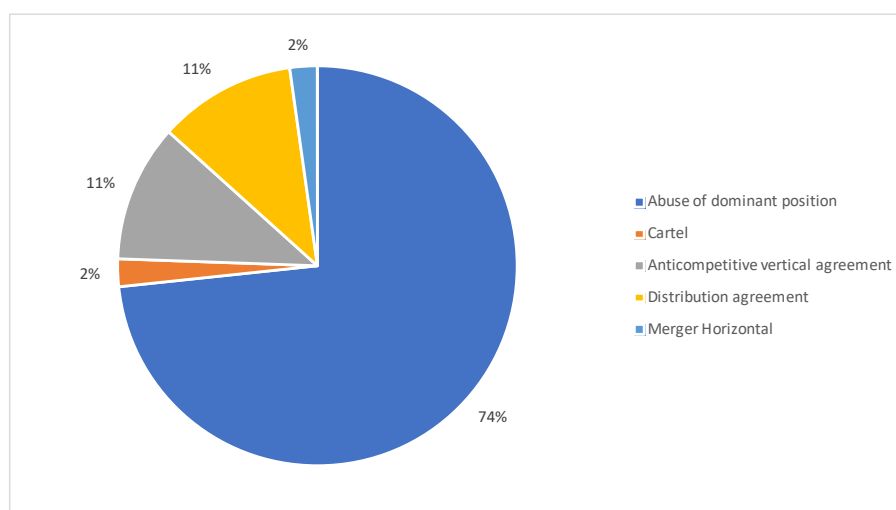
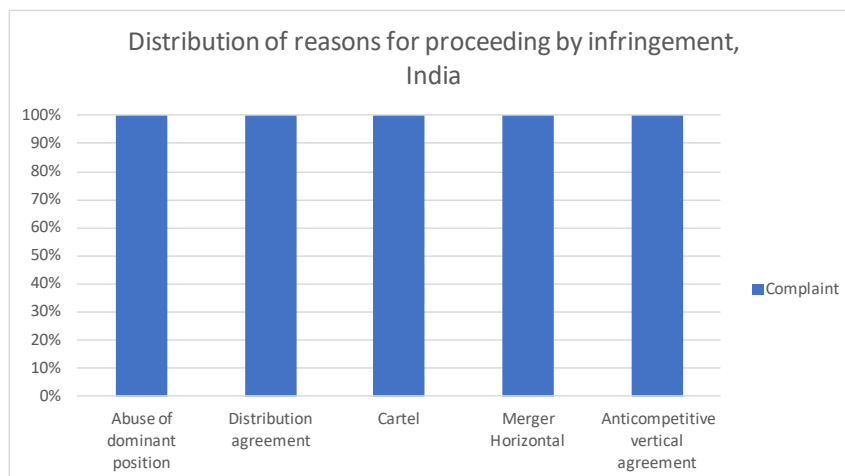


Figure 5.35.: Distribution of reasons for proceedings by infringement type – India infringements



5.5.6. China

5.5.6.1. China mergers

Figure 5.36.: Distribution of supply chain types – China mergers

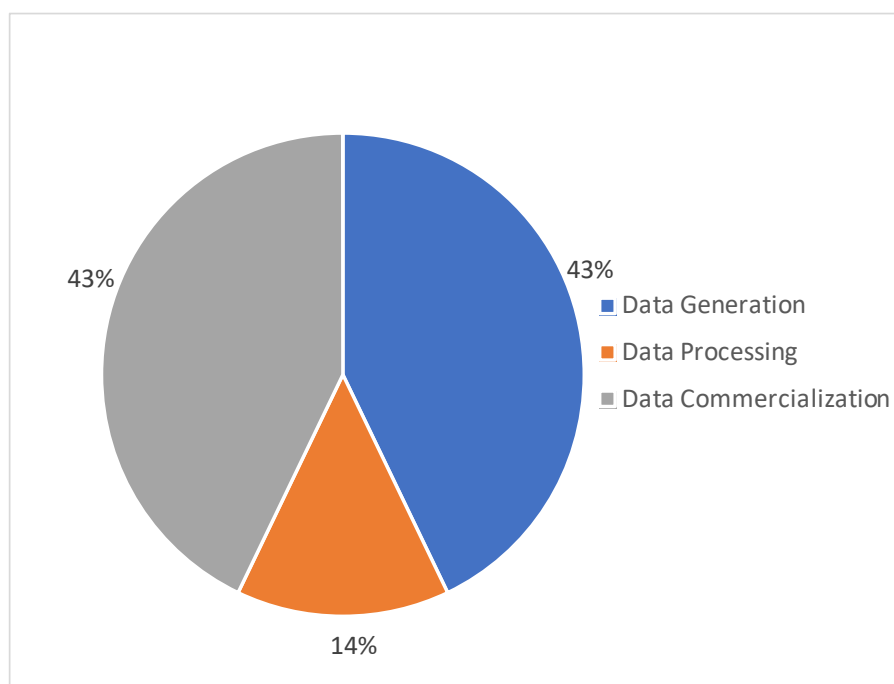
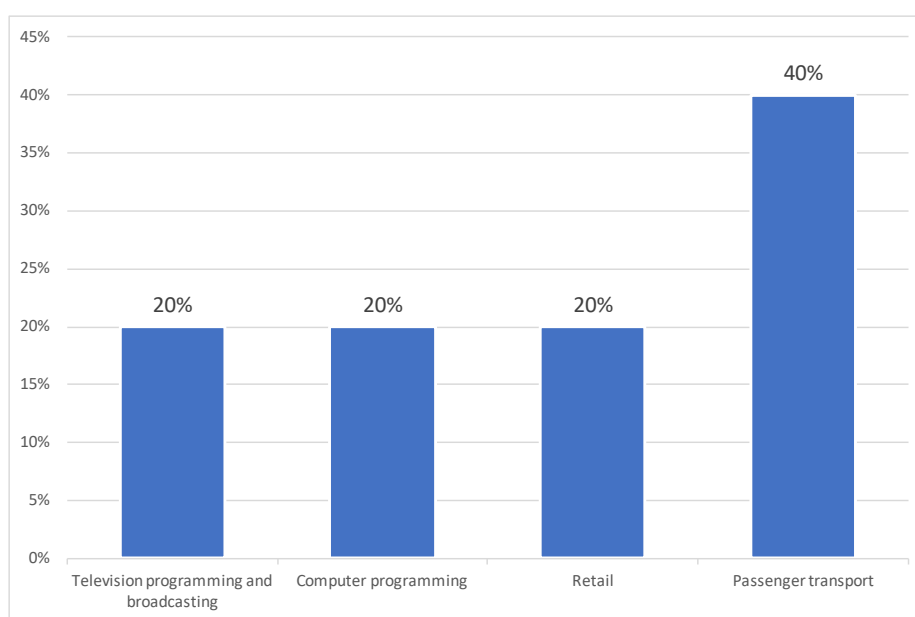


Figure 5.37.: Distribution of sectors – China mergers



5.5.6.2. China infringements

Figure 5.38.: Distribution of supply chain types – China infringements

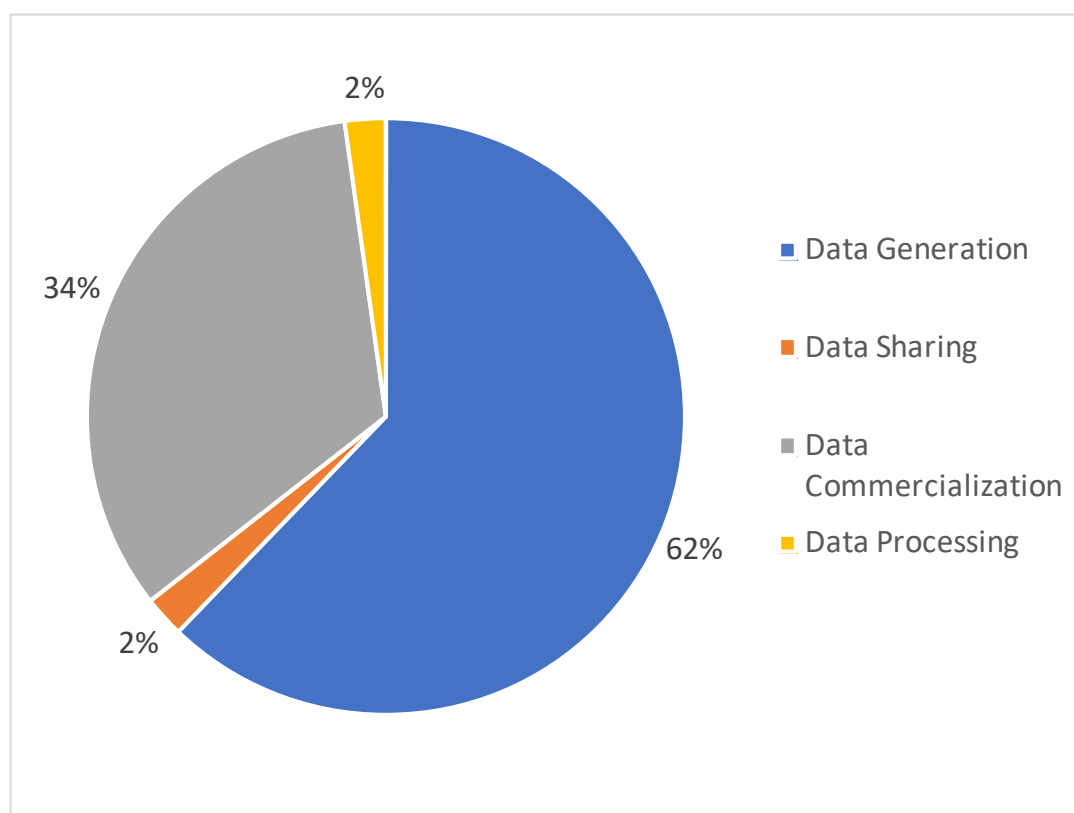


Figure 5.39.: Distribution of sectors – China infringements

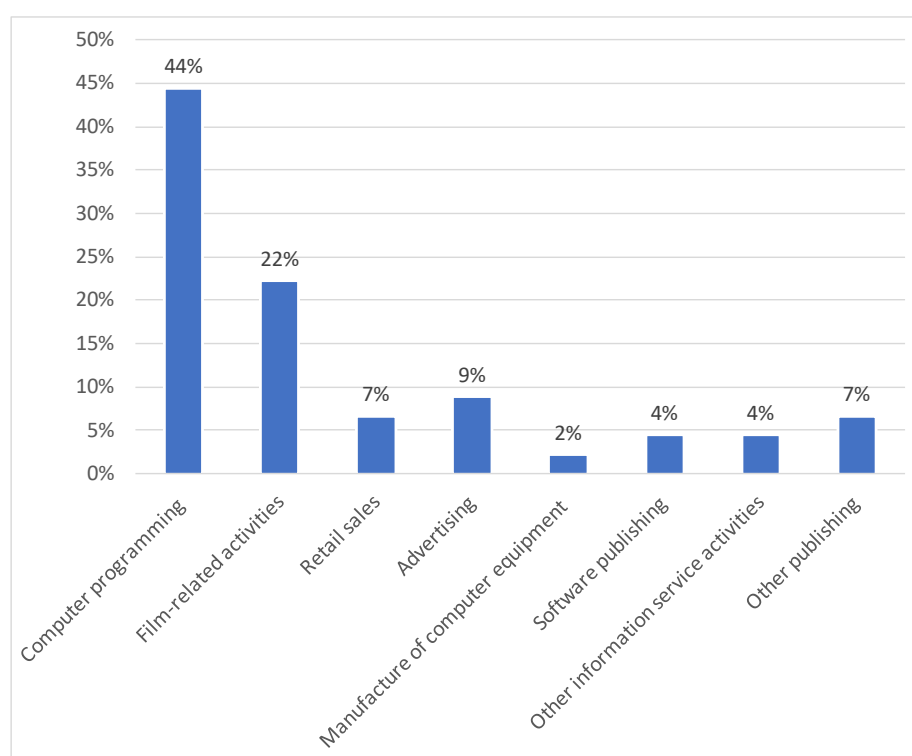


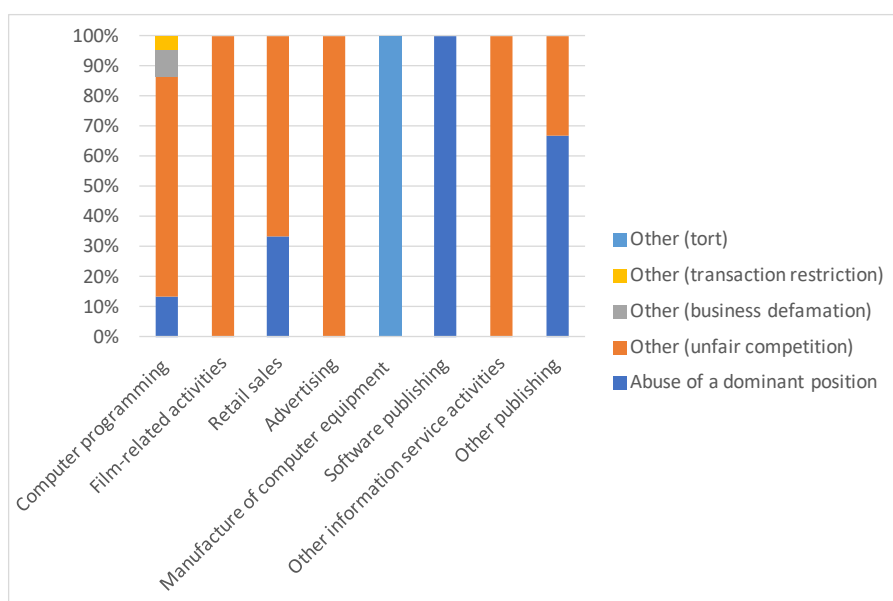
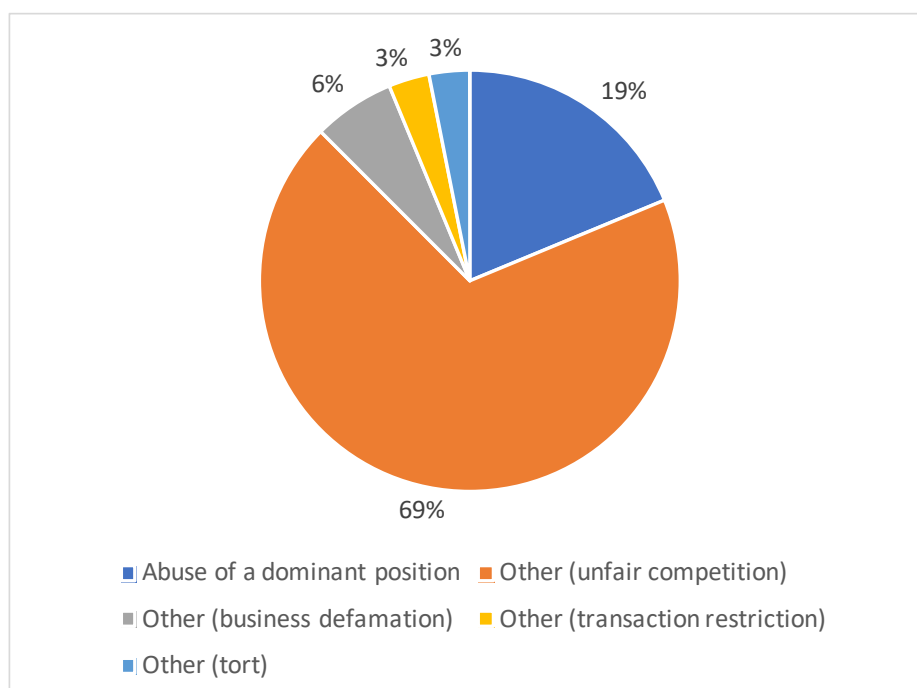
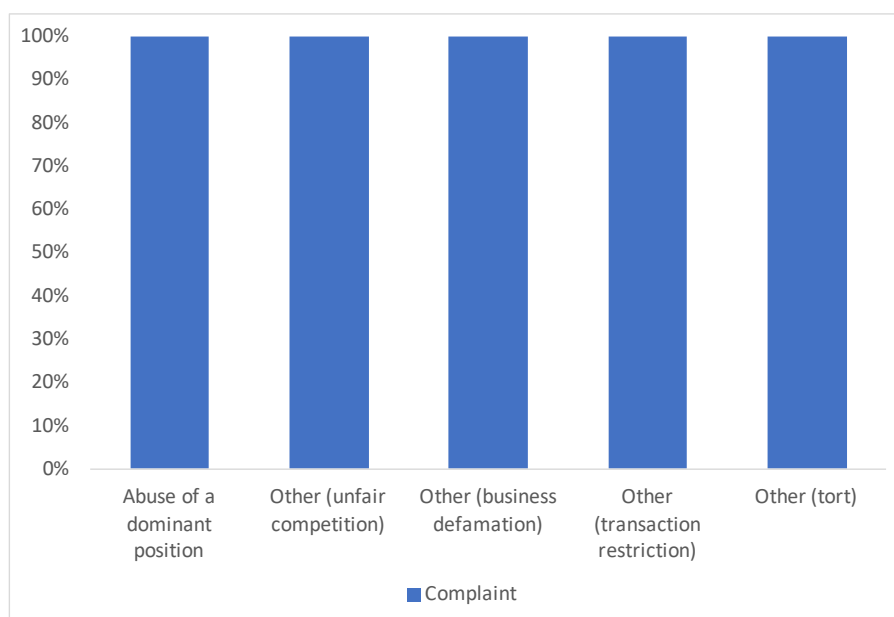
Figure 5.40.: Distribution of infringement types by sector – China infringements**Figure 5.41.: Proceedings by infringement type – China infringements**

Figure 5.42.: Distribution of reasons for proceedings by infringement type – China infringements



Chapter 6: E-commerce, competition law and digital vertical restraints

Ioannis Lianos, Nicolo Zingales with Azza Raslan, Matt Strader and the BRICS teams

6.1. General discussion

Rapid developments in the e-commerce markets have revolutionised distribution practices. The significance of such developments is particularly visible in BRICS economies: in 2015, China and Russia's ecommerce registered growth rates of 27% and 25%, each respectively, while Brazil and South Africa were both in the 15% range¹⁵⁷⁷. India topped the growth chart for the BRICS economies for the same period with an annual e-commerce growth rate of 54%. In any case, all BRICS economies were above the world average which was at an annual growth rate of more than 12% for the same period.¹⁵⁷⁸ These numbers have already significantly increased and are expected to increase further especially in India, China and Brazil, as a large percentage of new Internet users are projected to come from these countries¹⁵⁷⁹. While India's online retail market is the fastest growing amongst BRICS and even worldwide, having witnessed a compound annual growth rate (CAGR) of 53 per cent for the period 2013 to 2017.¹⁵⁸⁰

Box 1 E-commerce in BRICS Economies: A Rising Trend

The Indian e-commerce sector has grown exponentially from US\$14 billion in 2014 to US\$39 billion in 2017, and is expected to reach US\$200 billion in 2026¹⁵⁸¹. This is in line with estimates of a burgeoning increase of India's total internet user base,

1577 United Nations Industrial Development Organization and Shanghai Academy for Social Sciences, 'Ecommerce Development Report for Small and Medium-Sized Enterprises in BRICS Countries', < https://www.unido.org/sites/default/files/files/2018-07/E-commerce%20Development%20Report%20%28SASS%29_09072018.pdf>; see also 'Status, Opportunities and Challenges of BRICS E-commerce' (Report prepared by UNIDO and ITC) <[http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/BRICS%20E-commerce%20_Status%20Opportunities%20and%20Challenges_22AUG2017_final\(1\).pdf](http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/BRICS%20E-commerce%20_Status%20Opportunities%20and%20Challenges_22AUG2017_final(1).pdf)>

1578 India registered a spike of 180% growth in 2015, but however followed by a mere 12% in 2016. See 'E-commerce in India: From 180% in 2015, growth crashes to 12% in 2016 at \$14.5 bn', <https://www.financialexpress.com/industry/e-commerce-in-india-from-180-in-2015-growth-crashes-to-12-in-2016-at-14-5-bn/530070/>

1579 'Digital 2019: Global Digital Overview', at <https://datareportal.com/reports/digital-2019-global-digital-overview->. See in particular "Internet Growth Ranking" (placing these three countries in the top 10, with India and China in the top 2)

1580 Bain & Company Report. By comparison, China has a CAGR of 33 per cent over the same period. 'India is fastest growing e-commerce market: Report' The Times of India (29 November 2018) <<https://timesofindia.indiatimes.com/business/india-business/india-is-fastest-growing-e-commerce-market-report/articleshow/66857926.cms>>.

1581 *ibid.*

specifically from 560.01 million in September 2018. to 829 million by 2021¹⁵⁸². Considering the giant leaps in Internet penetration, it has also been noted that the next 100 million e-commerce customers will be of a very different demographic from the existing 50 million (for instance in term of age, knowledge of English, urban location, etc), which might require the adoption of different policies and strategies.¹⁵⁸³

China is another key player in global ecommerce. According to a 2017 Report by the United Nation Industrial Development Organization and the Shanghai Academy of Social Science, total e-commerce transaction volume had an average annual growth of 35%, accounting for 65% of China's GDP¹⁵⁸⁴. More recent estimates by eMarketer reveal that China's ecommerce sales in 2019 are expected to grow much faster than its total retail, increasing 27.3% year over year to \$1.935 trillion¹⁵⁸⁵. By 2023, its retail ecommerce sales will represent 63.9% of total retail sales¹⁵⁸⁶. Against this backdrop, it is interesting to note that there has been so far no anti-trust enforcement in this area, despite the existence of a legal prohibition specifically addressing certain types of vertical agreements¹⁵⁸⁷.

Brazil registered 27.4 million active consumers of e-commerce during the first semester of 2018, which represents a 7.6% growth when compared to the same period of 2017. Brazilian individuals spend 433 BRL (roughly 115 USD according to the exchange rate of February 2019) on average for each e-commerce transaction. According to the IBGE survey (TIC Domicílios), in 2017, 35% of Brazilian internet users had engaged in e-commerce, acquiring products or contracting services through the internet in the last 12 months¹⁵⁸⁸. The 38th Edition of the Webshoppers Report¹⁵⁸⁹, conducted by Ebit/Nielsen, shows that 68% of the e-commerce transactions happen through PCs, and 32% via mobile devices. The sales by mobile devices grew by 30% in 2018 when compared to 2017, totalling 17.4 million transactions, a trend consistent with the increasing importance of mobile access to the internet. However, data also suggest that consumers still use comparatively more PC access for e-commerce (68% of transactions for 56% of PC access versus 32% of transactions for 97% of mobile access).

1582 'E-commerce Industry in India' (India Brand Equity Foundation) <<https://www.ibef.org/industry/ecommerce.aspx>>.

1583 PwC, 'Propelling India towards global leadership in e-commerce' (2018) at <https://www.pwc.in/research-insights/2018/propelling-india-towards-global-leadership-in-e-commerce.html>

1584 Ecommerce development Report, supra n. 1

1585 Man-Chung Cheung, 'Global Ecommerce 2019: China', at <https://www.emarketer.com/content/china-ecommerce-2019>

1586 Ibid.

1587 Article 14 of China's Anti Monopoly Law stipulates that business operators are prohibited from reaching any of the following monopoly agreements with their trading parties: (i) fixing the price of commodities for resale to a third party; (ii) restricting the minimum price of commodities for resale to a third party; or (iii) other monopoly agreements as determined by the Anti-monopoly Law Enforcement Agency under the State Council.

1588 'TIC Domicílios. Pesquisa Sobre o Uso das Tecnologias de Informação e Comunicação nos Domicílios Brasileiros' (2017), at https://www.cetic.br/media/docs/publicacoes/2/tic_dom_2017_livro_eletronico.pdf

1589 Available at: < <https://pt.slideshare.net/LucasModesto6/webshoppers-37-2018> >

South Africa has been growing at a constant rate, despite forecasts initially predicting a slowdown. In 2015, when the scale of e-commerce was quite small in the country, the rate of growth of online retail was 26%, and 60.8% of the Internet user base were ready to shop online¹⁵⁹⁰. In the following years this was expected to decrease to 20%, but the numbers remained stable around 25%¹⁵⁹¹, up to last year¹⁵⁹². The 2019 e-Commerce Report from World Wide Worx reported in November 2018 that total revenue from e-commerce sales in South Africa would reach R14 billion by the end of the year. According to market research company Statista South Africa will have as many as 21,5-million online shoppers in 2019, that's almost 40% of the population. However, online retailers still make a relatively small proportion of the overall retail¹⁵⁹³. There is still a large margin for improvement also on the expansion of the user base, given the forecast that Internet penetration will rise to 80.8% in 2023, from 59.8% in 2017¹⁵⁹⁴.

The Russian e-commerce sector has also been growing rapidly. In 2018, the Russian e-commerce market was estimated to amount to 1 trillion roubles (approximately 13,5 billion EUR) with 18% annual growth, and the share of e-commerce in retail non-food sales reached 7.2%.¹⁵⁹⁵

With an increasing number of smartphone users, online retail has provided substantial opportunities for product/service providers to develop innovative business models to efficiently expand their market boundaries. E-commerce has also revolutionised the consumer experience – expanding the choice of suppliers, ability to compare prices and quality of products/services. These opportunities have resulted in traditional brick-and-mortar stores experiencing different perspectives of competition in online retail – from designing distribution networks, to pricing on platform markets, to opportunities of advertisement. This is particularly relevant for the BRICS economies where B2C is particularly growing at a fast pace. Despite some fluctuation over the past three years, more recent data shows BRICS economies among the top ten developing and transition economies in their respective regions in B2C e-commerce in 2018.¹⁵⁹⁶

1590 Ecommerce development Report, supra n. 1

1591 World Wide Worx '2019 eCommerce Report', at <https://insaka.co.za/2018/11/09/2019-ecommerce-report/>

1592 'E-commerce growth in South Africa outstripping forecasts', Tech Central (31 October 2018) <https://techcentral.co.za/e-commerce-growth-in-south-africa-outstripping-forecasts/84830/>

1593 Hassan Khan Yousafza 'What's holding back e-commerce in South Africa?', The Journalist (29 June 2019), <http://www.thejournalist.org.za/spotlight/whats-holding-back-e-commerce-in-south-africa>

1594 See 'Internet user penetration in South Africa from 2017 to 2023', at <https://www.statista.com/statistics/484933/internet-user-reach-south-africa/>

1595 'Minpromtorg Estimates Russia's E-Commerce Volume at 1 Trillion Rubles', Kommersant, (23 May 2018), <https://www.kommersant.ru/doc/3637286> accessed 4 March 2018 and 'Internet Commerce in Russia 2018', Data Insight, 20 <http://datainsight.ru/sites/default/files/DI_Ecommerce%202018.pdf> accessed 4 March 2018. For more details, please see the Russian country report, section 1.3.

1596 UNCTAD B2C E-commerce Index, 2018, available at https://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d12_en.pdf

Table 6.1. BRICS Economies in UNCTAD B2C E-commerce Index, 2016 – 2018

1.A Top Ten Developing and Transition Economies

East, South & Southeast Asia	West Asia & North Africa	Sub-Saharan Africa	Latin America and the Caribbean	Transition economies
Singapore	United Arab Emirates	Mauritius	Chile	Belarus
Hong Kong (China)	Turkey	Nigeria	Brazil	Serbia
Korea, Republic of	Saudi Arabia	South Africa	Jamaica	Russian Federation
Malaysia	Islamic Republic of Iran	Ghana	Trinidad and Tobago	Georgia
Thailand	Bahrain	Kenya	Costa Rica	Macedonia, FYC
Mongolia	Lebanon	Uganda	Colombia	Ukraine
China	Kuwait	Botswana	Uruguay	Kazakhstan
Viet Nam	Oman	Cameroon	Venezuela, Bolivarian Republic of	Moldova
India	Jordan	Namibia	Belize	Bosnia and Herzegovina
Bangladesh	Tunisia	Gabon	Argentina	Albania

1.B BRICS Economies Ranking 2016-2018

Year	BR	RU	IN	CN	ZA
2016	62	71	44	60	54
2017	62	43	83	65	72
2018	61	42	80	63	77

Source: Author's review based on UNCTAD B2C E-commerce Index, 2016 – 2018

6.1.1. The growth of e-commerce and digital vertical supply management

The growth of the Internet and the subsequent development of electronic business has profoundly transformed the distribution segment of supply chains as well as the relations between the various segments of the chain. The rise of electronic commerce has been an important feature of economic development globally since the mid-1990s. Early Electronic Data Interchanges (EDI) between trading partners were first incorporated in Business to Business (B2B) transactions, before Internet technologies were applied to Business to Consumer (B2C) exchanges that took off in the second wave of electronic commerce from mid-2000s. The expansion of the more rapid broadband connections, until then merely used by business, to consumers, which were until then connected to the Internet using much slower dial-up modems, has contributed to this development. The increased use of the Internet, the more intensive use of e-mail technologies, the growth of online advertising activity and subsequently the development of Web 2.0 technologies, allowing users to participate in the creation, editing and distribution of content online, were among the factors explaining the phenomenal increase of the economic significance of electronic commerce globally.

The third wave of electronic commerce has led to important changes in business practices and will certainly disrupt existing business models of distribution of products (including services). The widespread use of smartphones (mobile phones including an operating system enabling the users to run various software packages and a Web browser), or the development of tablet computers have led to the emergence of mobile telephone based commerce (or m-commerce), thus further increasing the opportunities for growth of e-commerce. Social networking technologies enable social platforms, such as Facebook, or microblogging platforms, such as Twitter, to emerge as additional e-and m-commerce sites, taking advantage of interpersonal connections to provide targeted advertising or promotion of products (social commerce). Big Data analytics and the massive collection of personal data may further help in tracking with detail the behaviour of consumers (their digital identity), when navigating the Internet, and help companies predict the kinds of products and services consumers may be interested in. These tracking technologies, such as barcodes, bokodes, smart cards and Radio Frequency Identification devices are embedded in the various objects, collecting data about them without

any human intervention and feeding this information into computer systems, thus enabling supply chains to monitor where their products are at all times. Major global companies, including distributors such as Wal-Mart and branded goods suppliers, such as Gillette, Procter & Gamble, Coca-Cola, Unilever, Johnson & Johnson are supporting the Auto-ID Labs, research entities working on the integration of tracking and communication technologies into B2B exchanges and on the architecture of the Internet of Things, which will significantly affect the way supply chains operate by, for instance, enabling higher in-transit visibility and significantly cutting down logistics.

Technological changes have played an important role in the revision of the EU rules on distribution agreements in mid-1990s, arguably as important as the change of policy paradigm with the advent of the 'more economic approach' and the increasing influence of economics in determining the scope of intervention of competition authorities concerning 'vertical' restraints.¹⁵⁹⁷ The attributes of these technological changes could be summarized as follows:

First, they significantly decrease organisation and monitoring costs, improving the level of communication between the various business units of a vertically integrated firm, while at the same time they decrease transaction costs at the marketplace, for instance by considerably limiting search costs. This may affect the incentives of firms for vertical integration and also leads to the development of network economic structures, where independent economic entities form long-term relationships with other companies, sharing resources and jointly developing strategies. These networks may take different forms: strategic alliances and partnerships, supply webs interconnecting various strategic alliances and complex outsourcing contracts, electronic marketplaces and portals. These networks form industry value chains, sometimes long, sometimes short, always oriented towards the final consumer and enclosing a series of primary (identify customers, design, purchase inputs, manufacture, market and sell, deliver, provide after-sales services and support) and supportive activities (finance and administration, human resources, technology development activities).

Second, the possibilities offered by tracking technology and the wider availability of personal data, on the online and market behaviour of consumers, have led a number of companies to develop, more effectively, commercial practices that discriminate between different market segments, divided according to the customers' characteristics (gender, age, geographic location, income level, personality, approach to life etc), leading to different forms of market segmentation. This is particularly important for focused advertising and e-marketing, eventually also pricing the products or offering specific tailored-made to these segments, versions of them. This may of course enable these firms to extract more revenue out of the various market segments, if they are able to

1597 Already at the Green Paper on Vertical Restraints in EC Competition Law (1997), available at http://ec.europa.eu/competition/antitrust/others/96721en_en.pdf paras 40–43, the Commission noted that the '[w]hole nature of distribution has been changed by the Information Technology Revolution', citing Just in Time principles in the organisation of manufacturing and distribution, quick response logistics, Electronic Data Interchange, bar coding, laser scanners as important innovations 'involving a shift from the traditional arms-length relationship between manufacturers, wholesalers and retailers towards a relationship of co-operation particularly in the area of logistics'.

prevent arbitrage between the different groups of customers. This market segmentation may be achieved either unilaterally or with the cooperation of the other parts of the supply chain, through specific agreements ensuring the effectiveness of the segmentation, which could eventually give rise to different forms of vertical restraints.

Third, through technology supply chain management becomes a more effective and less expensive, enabling companies to achieve higher quality at a lower production cost. Firms find it crucial to enter into long-term agreements with partners in other segments of the chain, in order to create the necessary relation of trust that is required by the importance of relation-specific investments that need to be undertaken in setting the supply chain management. This may lead to disintermediation and vertical integration but also to deconcentration through the constitution of networks or supply alliances that are managed by supply chain councils. These various forms of supply chain management share the common characteristic that they are all ultimate consumer orientated, as any segment of the chain directs its efforts towards meeting the needs of the next member of the chain, the perception being that all segments of the chain do not constitute separate islands of activity but essential ingredients for the formation of the total value of the chain. For instance, brand-building takes the wider perspective, that of the whole value chain, leading to the elaboration of labels and standards to which the various segments of the chain abide. Issues relating to the distribution of the total surplus value of the chain also take a prominent role in the relation between the various economic actors participating to the supply chain, in particular as supply chain management, even if it is flexible, crystallizes more easily their position (and share). Alternatively, the possibilities offered by private electronic marketplaces and portals, such as Amazon. Supply which also operates as an actual distributor, with warehouses and products stocked on shelves, may lead firms to opt for a spot-market method of organisation of their economic activity, if the nature of their products and other considerations does not justify the cost of elaborating long-term supply relationships.

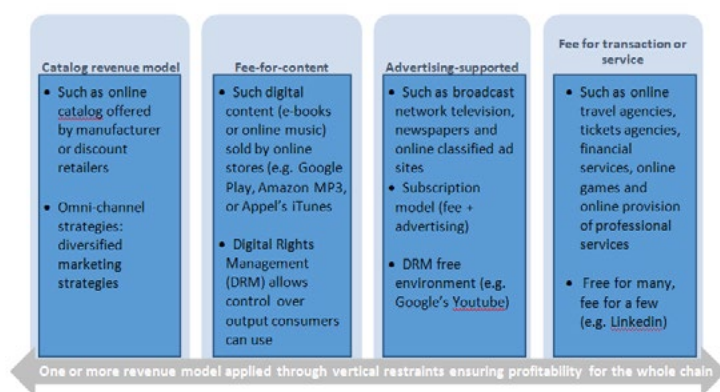
Fourth, Internet and the advent of digital economy profoundly changes the organisation and the revenue models of the industry. Long gone are the days where distribution was organised as a web of conflicting interests, each of the actors (manufacturer, wholesaler and retailer) acting in order to defend their interests and develop independent strategies, sometimes to the detriment of the chain. Online commerce enables manufacturers to bypass intermediaries by proceeding to a direct distribution of their product through the Internet. This can take the form of the conventional catalog revenue model, with the difference that the catalog is now online, consumers placing orders through the manufacturer's website. Internet also empowers discount retailers to lower down their costs and thus to take advantage of the fact that their website operates as a hub for discount offers from different manufacturers. Marketing channels are also diversified, with the development of omni-channel strategies, where manufacturers operate their own website, while also distributing through traditional retailers, online retailers and discounters.

The distribution of digital content may also rely on the fee-for-content revenue model. An example is e-books or online music, which are sold as digital content by online stores, such as Google Play, Amazon MP3, or Appel's iTunes. Digital Rights Management software empowers the sellers to limit the number of copies of the audio file that consumers can use, although there are also companies opting for a DRM-free environment, relying on a different revenue model (Google's Youtube, the leading source of free videos on the Web relies on an advertising revenue model).

Advertising-supported revenue models have been on the rise. This is a well-tested model for the distribution of content, for instance used by broadcast network television, newspapers and online classified ad sites. Sometimes it is combined with a subscription model where consumers pay a fee but also accept some level of advertising. These business models usually rely on multi-sided platform strategies, bringing together two or more interdependent groups of consumers, information technology and the possibilities offered by Big Data technology and the social Web to collect personal data making it an extremely valuable business method for advertisers. This provides incentives to the various economic actors to strategically design platforms that appeal to multiple sides, thus increasing the instances of platform competition.

Fee for transaction or fee-for service revenue models have been increasingly used by online travel agencies, tickets agencies, financial services, online games and for the on-line provision of professional services. Sometimes, these models rely on a free for many, fee for a few revenue model where companies try to attract consumers by providing a number of digital products for free, while enticing a small number of consumers to buy a more sophisticated and relatively expensive version of the product (e.g. LinkedIn).

Figure 6.2. Impact of Technological Effects on Revenue Models



Source: Author's illustration

These various models may co-exist in the same industry but also within the same supply chain. They are often implemented through vertical restraints, which aim to ensure the profitability of the whole supply chain, as opposed to the profitability of just the specific segment of the chain, by institutionalising procedures for the distribution of profit margins along the chain. This alters the usual understanding that each economic transaction should be assessed at the level of the chain it intervenes, without any consideration to other sides of the platform or other segments of the value chain. Competition

authorities ought to be careful not to influence the choice of the most effective revenue strategy for undertakings and keep a position of neutrality with regard to the revenue models chosen. However, they cannot assume that the conflicting web of interests will lead the various levels of the chain to police each other (the so called self-policing character of vertical restraints) which have led many competition authorities to abandon the area of vertical restraints in setting their enforcement priorities, deciding instead to focus on cartels. These important economic and technological transformations and the increasing importance of supply chain management may call for new operational concepts in competition law and the development of a more ‘holistic’ approach that engages more fully with value chains.

6.1.2. How do changes in technology affect the types of vertical restraints adopted?

Given the above-sketched transformation in the dynamics of distribution and monetization, it is logical to expect vertical restraints of a somewhat different nature in the digital environment. At the very least, the strategic role of individual-level data generated through consumer-facing entities, such as e-commerce platforms and online aggregators, will encourage specific types of restrictions (technical and contractual) in the ability of suppliers to use those insights outside their native environment. Further, the effects of these restrictions may be strengthened by exclusivity requirements on the sourcing of ads¹⁵⁹⁸, which often constitutes a crucial monetization strategy. At the same time, due to the vast array of available data points suppliers can now be put by online platforms in a much more effective position to not only adjust their offer to the needs of demand, but also to anticipate and even create demand for consumer groups who are the target of sophisticated profiling. In other words, the “prediction products” that can be traded on the basis of behavioral data¹⁵⁹⁹ have become a key competitive asset that can be leveraged to increase sales. This may lead to differences in pricing and in content depending on key consumer characteristics, such as affluence, behavioral preferences, and even time of purchase (through not just “yield” but also “dynamic” pricing).¹⁶⁰⁰ A further advantage of this model is that it allows sellers to reach more quickly a broader

1598 An example of such restrictions is the recent decision adopted by the European Commission with regards to Google’s contractual prohibition for publishers of ads served through its AdSense to host ads from competing services. See https://europa.eu/rapid/press-release_IP-19-1770_en.htm

1599 The term is used by Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (Public Affairs, 2019).

1600 In the context of online hotel reservations, for instance, it was reported that Mac users received higher quotations than PC users. See Dana Mattioli, ‘On Orbitz, Mac Users Steered to Pricier Hotels’ (WSJ, 23 August 2012), <<https://www.wsj.com/articles/SB10001424052702304458604577488822667325882>> accessed 10 July 2018. Similarly, a study where researchers created fake online accounts to survey pricing of 600 different products from 200 vendors found that products up to 4 times more expensive were shown to affluent personas rather than the budget conscious personas. Jakub Mikians, László Gyarmati, Vijay Erramilli, Nikolaos Laoutaris, ‘Detecting price and search discrimination on the Internet’, *Proceedings of the 11th ACM Workshop on Hot Topics in Networks*, 79-84. See also <https://www.theverge.com/2012/12/24/3800472/retailers-adjusting-online-prices-depending-on-income-and-location>.

audience, thanks to each platform's infrastructure, and to benefit from the platform's established reputation.

It is important to appreciate that reliance on third party platforms is but one of the options available to enter the market: sellers may for instance prefer to develop their own online distribution channels. The incentives and strategy are different from the previous scenario, as they require more investment in advertising to create brand awareness, and to build reputation and trust. In this context, the conventional wisdom is that restrictions preventing free-riding over that advertising are necessary; and that it is legitimate to enforce strict conditions for selective distribution systems when they are necessary, based on criteria that are determined and applied objectively, and do not go beyond what is necessary¹⁶⁰¹. However, it has been noted that the rationale of protecting the aura of reputation around a particular brand which leads to the brand owner's ability to charge high prices may have been too readily accepted in the past by courts and competition authorities, particularly where consumers' willingness to pay is not based on informed choices but largely driven by behavioural biases and other market failures¹⁶⁰². Accordingly, it may be sensible to scrutinize more closely vertical agreements in order to foster intra-brand competition as a de-biasing measure that allows different retailers to convey to consumers more information about the real value of any product or service in question¹⁶⁰³.

Another alternative strategy for producers to reach consumers is via a combination of their online distribution channel with offline retail (so called "bricks-and clicks" or "mix play" strategy). In this case, the two channels can be used effectively to subsidize each other, taking advantage of the wide circulation of information online to develop brand awareness and use the existing physical infrastructure to fulfil demand. In this context, the challenge for producers is one of avoiding cannibalization- that is, ensuring continuous feedback loop between the channel and preventing online to replace offline sales, rather than supplement them. For this reason, a requirement for distributors to have a brick and mortar shop may be a sensible criterion in a selective distribution system, provided it fulfils the above-mentioned conditions- and in particular it is justified by the nature of the product. With the advances of digitalization, the basis of this determination is likely to become more empirical thanks to the existence of large amount of consumption data, indicating for instance geographical and ethnical preferences: more accurately identifying the target population can lead to more effective stocking of stores, further enhanced by automated replenishment. This illustrates that the predictive power of Big Data can be effectively used even without using third party platforms and targeting consumers to the individual level, as it can lead to more efficient planning and decision-making. Amazon has recently taken this to the next level by filing a patent for "anticipatory shipping", which cuts the intermediary step of the local store and ship

1601 Guidelines on Vertical Restraints, para. 175.

1602 See Adrian Kuenzler, 'Dilution Law, Vertical Agreements, and the Construction of Consumption', 37 (1) Oxford Journal of Legal Studies (2017) 75, 91-95.

1603 Id., 100.

to Amazon warehouses the products that consumers in a particular geographical area are likely to order¹⁶⁰⁴.

6.1.3. What are the recent changes in business methods observed?

The development of e-commerce is very much linked to superior processes of supply-chain management and Just in Time inventory management, facilitated by Big Data, augmented reality, the use of analytics and deep learning to customize the shopping experience drones, advanced robotics and algorithms. The development of logistics near metropolitan centres forms part of the required fixed costs for the establishment of an e-commerce platform, in particular as competition with regard to the cost and time of the delivery becomes more intense. Amazon has set new standards delivering products ordered online within 48 hours, and in some cases 24 hours with the use of autonomous robots¹⁶⁰⁵. The company has become a logistics behemoth, competing with multinational courier delivery services, such as Fedex and UPS, although it is at the same time their customer (frenemies)¹⁶⁰⁶. The complexity of the competitive game and the hybrid horizontal and vertical character of the relations call for a careful than what is usually afforded to pure vertical restraints. Beyond the issues raised by the eventual dominance of an e-commerce platform, in particular those related to its dual role as platform and merchant, various contractual interactions between the e-commerce platform and the merchants may fall under the competition laws on collusive practices. This is not the first time where we observe a blurring of the horizontal/vertical distinction and the emergence of hybrid restraints. Of particular interest for this purpose is the practices of category management and private labels, which have attracted the attention of competition authorities in the past. Category management is a vertical partnership in which previously confidential information is shared between manufacturers and retailers in order to cut costs in distribution and increase the margin of both parties. The major impetus for this type of arrangement came from the supermarket industry as a response to the intense competition of warehouses and discounts stores. The category captain presents a plan-o-gram to the retailer suggesting a layout and a promotional plan for the entire category.

There are different forms of category management arrangements, going from strong ones, when the category captain has joint responsibility with the retailer for category development and is entrusted all category decisions, to loose forms of category management, where the retailer also received second opinions and recommendations from other category captains or the role of the category captain is an advisory one¹⁶⁰⁷. Ac-

1604 Praveen Kopalle, 'Why Amazon's Anticipatory Shipping Is Pure Genius', Forbes (28 Jan 2014), at <https://www.forbes.com/sites/onmarketing/2014/01/28/why-amazons-anticipatory-shipping-is-pure-genius/#2e7ba70a4605>

1605 See <https://www.washingtonpost.com/gdpr-consent/?destination=%2ftechnology%2f2019%2f08%2f12%2famazons-autonomous-robots-have-started-delivering-packages-new-location-southern-california%2f%3f>

1606 See, <https://multichannelmerchant.com/operations/fedex-cites-amazon-competition-first-time-10k/>.

1607 D M Desrochers, G T Gundlach and A A Foer, 'Analysis of Antitrust Challenges to Category Captain Arrangements' (2003) 22 Journal of Public Policy & Marketing 201, 204.

According to the EU Vertical Restraints Guidelines, category management may ‘sometimes distort competition between suppliers, and finally result in anticompetitive foreclosure of other suppliers, where the category captain is able, due to its influence over the marketing decisions of the distributor, to limit or disadvantage the distribution of products of competing suppliers’.¹⁶⁰⁸ This comes essentially from the conflict of interest between the supplier and the retailers, although the Commission notes that ‘in most cases the distributor may not have an interest in limiting its choice of products’.¹⁶⁰⁹ Category management might, however, produce exclusionary effects to other suppliers, in particular when the category captain is able, due to its influence over the marketing decisions of the distributor, to limit or disadvantage the distribution of products of competing suppliers.

Furthermore, new commercial practices, such as drop shipping, open book costing or yield pricing, may require from competition authorities an effort to adapt their conceptual toolkit. Drop shipping involves the selling a product without the responsibility of carrying inventory or shipping the goods, dropshippers setting their own product prices. The practice reduces the commercial risks for the e-commerce platform which is thus able to reduce its costs and capture the highest part of the surplus value, by imposing additional conditions in order to authorise drop shipping on the platform. For instance, Amazon allows dropshippers to sell on its platform but they can only dropship via Amazon’s Fulfillment by Amazon (FBA) services. This configuration raises interesting questions as to the characterization of the relation between the platform and the manufacturers as a genuine commercial agency, therefore benefitting from some immunity.

6.2. Foundations for the competition assessment of online vertical restraints

6.2.1. Are online vertical restraints different from offline vertical restraints?

One could first look to the possible pro-competitive narratives of online vertical restraints. As it is also the case for offline vertical restraints, online vertical restraints deal with externalities. These can be of various sorts and are not necessarily exacerbated in an online setting. For instance, a free-rider problem may emerge in the provision of retail services if an offline retailer cannot fully appropriate the returns from providing services, such as in-store demonstration and trained sales staff). This does not only occur with regard to competition between offline and online distributors, but also between online distributors, as low-cost platforms, or direct online sale at the manufacturer’s/supplier’s website may free-ride on rival platforms’ investments in retail services such as online reviews and advice in relation to products sold. Exclusive dealing restraints or RPM may solve this horizontal externality problem. Minimum RPM may also reduce free-riding by preventing retailers who do not provide the necessary retail services from discounting the product. However, one should be cautious in overstating the free-riding

¹⁶⁰⁸ Guidelines on Vertical Restraints [2010] OJ C 130/1, para 210.

¹⁶⁰⁹ Ibid.

argument, as the large quantities of online information may weaken the potential for free-riding and one cannot exclude the possibility that free-riding works at the opposite direction with offline retailers free riding on online retailers.

Online vertical restraints may also be found necessary if retailers that do not have an established reputation are able to free-ride on the reputation and quality certification made by other retailers. One may however oppose to this argument the fact that online sellers increasingly focus on non-price aspects of competition, by investing in reputation and developing online retail brands. Online retailers, such as eBay, Amazon, Alibaba, are among the most valuable brands in the world.¹⁶¹⁰

Furthermore, it is possible that online commerce may generate information asymmetries particularly in relation to the quality of goods and services available online and the reputation of online sellers, as consumers are not able to physically inspect a product prior to purchase and may have little information about the quality and reputation of some online sellers. However, one may object to this argument that there is enough competition between online sellers on non-price aspects, which could contribute in reducing information asymmetries for consumers, in particular as online platforms are offering consumers the opportunity to provide feedback online, once the sale is completed.

Finally, in the presence of demand uncertainties for new products, it is also difficult for entrants to find an offline retailer/distributor if online distribution is available, pushing the suppliers to adopt restraints such as the obligation to dispose of an established offline presence. This does not take account of the fact that Internet also offers suppliers the possibility to promote the product directly online or on social media and to ship the product directly to the consumer.

Online vertical restraints may also give rise to anti-competitive effects. These can be of various sorts. They may foreclose downstream rivals (retail foreclosure) if the supplier introduces limitations to online sales and imposes dual pricing, which reduce online retailers' access to the products, thus raising prices and restricting consumer choice, in particular if the product is a 'must have' product. Through exclusive distribution agreements with key distributors, the supplier may foreclose his rivals that can only use less efficient distribution networks or incur the expenses for setting up their own. This is less of a concern in situations of disintermediation, in which the supplier relies less on traditional distributors and deals directly with consumers. Online vertical restrictions, such as parity clauses (Across Platform Parity Agreements – APPAs) may protect platforms from disintermediation, while selective distribution or exclusive dealing clauses may hinder the development of new distribution platforms.

Consistent with the dampening competition theories of harm for offline commerce, online RPM clauses may soften competition between retailers and between suppliers. An APPA may also restrict a supplier's ability to charge lower retail prices on a lower-fee platform and thus increase its sales. Online RPM make prices more transparent, by of-

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fering a focal point for retailers to increase their ability to coordinate higher retail prices, thus facilitating upstream collusion. APPAs may also facilitate collusion between platforms by reducing a platform's incentives to deviate from a collusive arrangement, for instance by offering lower fees to sellers on the platform. Cumulative network effects may also arise more frequently in online markets given the greater scope for expansion of geographic sales and disintermediation. This may be exacerbated by the relatively higher concentration of online commerce, as entry costs in online retailing are most often sunk costs and there are important network effects, the first mover enjoying a fairly important competitive advantage compared to its rivals, thus leading to the easier emergence of a situation of single-firm dominance.

6.2.2. Platform governance and commercial agency immunity

Given the variety of match-making and distribution models adopted by online platforms, it is crucial for antitrust analysis to examine the specific characteristics of the relationships between those platforms and their featured sellers or suppliers. This is critical not only in order to appreciate the effects of the arrangements in place between actors operating at different level of the value chain, but also to determine whether such arrangements could be subject to antitrust scrutiny altogether. Platform governance choices may indeed fall outside the scope of antitrust analysis as a result of the application of the "single entity" or "single economic unit" doctrine¹⁶¹¹, which immunizes coordination between an undertaking and its employees or controlled entities¹⁶¹². In particular, the relationship between a platform and its business partners may be qualified as a genuine commercial agency, where a platform is working for the benefit of a principal and may be treated as an "auxiliary organ" forming an integral part of the latter's undertaking, who must carry out his principal's instructions and thus, like a commercial employee, forms an economic unity with the undertaking¹⁶¹³.

This immunity for commercial agents is typically justified on grounds of transactional efficiency, to foster the ability of firms to choose the most efficient governance structure to organize their production without being penalized for "contracting out" some of

1611 For the US "single entity" doctrine, see *Copperweld Corporation v. Independence Tube Corporation* (1984), 104 S. Ct. 2739; *American Needle, Inc. v. National Football League* (2010), 130 S. Ct. 2206. For the EU "single economic unit" doctrine, see *Case 22/71, Béguelin Import Co. v S.A.G.L. Import Export* [1971] ECR 949, para. 8; *Allgemeine Elektrizitäts-Gesellschaft AEG-Telefunken AG v Commission of the European Communities* [1983] ECR 3151, para. 50; *Case 170/83, Hydrotherm Gerätebau GmbH v Compact del Dott. Ing. Mario Andreoli & C. Sas.* [1984] ECR-2999, para. 11. *Case C-217/05, Confederation Espanola de Empresarios de Estaciones de Servicio v Compania Espaniolas de Petroleos SA (CEPSA)*, ECLI: EU: C: 2006: 784, para. 40. For an overview of the evolving standard in both jurisdictions, see Pieter Van Cleynebreugel, 'Single entity tests in U.S. antitrust and EU competition law', available at <http://ssrn.com/abstract=1889232>.

1612 The concept is also used in EU competition law to impose liability on an undertaking for the conduct of separate legal entities to the extent that there is a "unitary organisation of personal, tangible and intangible elements, which pursue a specific economic aim on a long-term basis and can contribute to the commission of an infringement of the kind in Article 81(1) EC". See *Case C-407/08 P, Knauf Gips KG v European Commission*, ECLI:EU:C:2010:389, 84.

1613 See, in the EU: *DaimlerChrysler AG v Commission of the European Communities* [2005] ECR II-3319, para. 85

their requirements to third parties. This understanding draws on the foundational work on Transaction Cost Economics (TCE) by Ronald Coase on the theory of the firm, and its subsequent development by Oliver Williamson¹⁶¹⁴ (see also our analysis in Chapter 3). Coase identified transaction costs as the reason why firms prefer to hire employees rather than to contract an independent party for one or more particular tasks; he thus explained that as a firm grows, so do the transaction costs involved in its internal processes, making the prospects of contracting out more appealing from an efficiency standpoint¹⁶¹⁵. Writing three decades later, Williamson focused on transaction costs as a defining element to distinguish between two opposite modes of production -hierarchies and markets- and further identify a third genus -hybrids- where the firm contracts out some of its functions while retaining some degree of coordination¹⁶¹⁶. He thereby illustrated the trade-offs involved in choosing one form over another, showing that choices will depend on the interaction between three types of attributes for each transaction: the specificities of assets involved, the uncertainties regarding the organization of the transaction, and its frequency. According to Williamson, this should lead to forbearance from interference with the firm's selected internal governance mechanisms because the firm constitutes the most efficient way of gathering knowledge about the circumstances of each transaction, and because permitting internal disputes to be appealed to court would undermine the efficacy and integrity of hierarchy.¹⁶¹⁷

However, a TCE view does not always adequately explain the strategic considerations involved in selecting a particular mode of production or distribution (see Chapter 2). This can be understood with reference to the work of Oliver Hart and John Moore, who took the theory of the firm one step further by linking it to ownership: firms enter into incomplete contracts because of the impossibility to predict all possible contingencies, and in doing so can retain residual rights of control (i.e., rights to reorder the deployment of assets in case a need for adaptation arises) over assets that are "contracted out"¹⁶¹⁸. Hart and Moore went on to argue that it is rational for firms to allocate ownership of productive assets to the party of the transaction which has the highest need for protection against *ex-post* opportunism over those incomplete contracts, which suggests a need for alignment between the hierarchy structure and the expected contribution of each actor in the value chain. In this sense, the commercial agency immunity would provide an important shield from liability for firms that need access to strategic resources (for instance, a platform's match-making capability) but seek to retain some level of control over the ability of the providers of those resources to influence the conditions of sale of the final product. In other words, a more strategic perspective justifies hybrid

1614 See for instance Ioannis Lianos, 'Commercial Agency Agreements, Vertical Restraints, and the Limits of Article 81(1) EC: Between Hierarchies and Networks', 3 (4) *Journal of Competition Law and Economics* 625 (2007), 652-654; see also Angela Huyue Zhang, 'Toward An Economic Approach to Agency Agreements', 9 (3) *Journal of Competition Law & Economics* 553 (2013), 572-576.

1615 Ronald Coase, 'The Problems of Social Cost', 3 *Journal of Law & Economics* 1 (1960).

1616 Oliver Williamson, "Comparative Economic Organization: The Analysis of Discrete Structural Alternatives," 36 *Administrative Science Quarterly* 269 (1991).

1617 Oliver Williamson, *The Mechanisms of Governance* (1st ed., Oxford: Oxford University Press 1996).

1618 Oliver Hart & John Moore, 'Property Rights and the Nature of the Firm', 98 *Journal of Political Econ.* 1119 (1990), 1124.

arrangements in which a firm retains some form of ownership and control over a productive asset out of precaution against possible hold-up situations, even if this cannot be explained on purely transactional efficiency grounds. At the same time, a resource-based view suggests that there may be reasons to be concerned about firms using vertical arrangements to reach a position where the firm enjoys a competitive advantage over others being protected by imperfect substitutability and imperfect imitability.¹⁶¹⁹ The advantage may be the classic one of being the first mover, but it also applies to more intricate situations where the relationship between the resource and the competitive advantage is not immediately apparent (yet existent) or where it is difficult for other firms to replicate that resource due to complex social interactions¹⁶²⁰. A resource-based view recognizes the heterogeneity in firm's organization as a key factor in sustaining competitive advantage in the long run, along with the limited nature of competition (both *ex ante* and *ex post*) and the imperfect mobility of resources¹⁶²¹. In order to benefit from the immunity, an agreement needs to be one of *genuine* agency, as revealed from the substance of the arrangements made between the parties: a supplier cannot simply opt for the characterization of a relationship as "agency" to circumvent the application of the prohibitions of collusion and coordination under the antitrust rules. In order to identify the salient features of genuine agency and assess its application to online platforms, one can validly rely on guidance provided by courts and competition authorities—the most elaborate of which is found in the context of EU competition law¹⁶²².

The first important piece of guidance offered was the European Commission's Notice on exclusive dealing contracts with commercial agents¹⁶²³, which endeavoured to exonerate from the application of article 101 TFEU (formerly art. 85 TEC) the provisions of exclusivity between principals and genuine agents. The key criterion used by the Commission was financial risk: to qualify as genuine, the agent would need not to bear any financial risks bound up with the sale or performance of the contract¹⁶²⁴. The Notice illustrated specific scenarios in which it would consider this to be the case, namely when the contracting party: (a) is required to keep or does in fact keep, as his own property, a considerable stock of the products covered by the contract; (b) is required to organize, maintain or ensure at his own expense a substantial service to customers free of charge, or does in fact organize, maintain or ensure such a service; or (c) can or does in fact determine prices or terms of business. While it is not clear whether the qualification

1619 M. A. Peteraf, 'The cornerstones of competitive advantage: A resource-based view', 14(3) *Strategic Management Journal* (1993) 179–191.

1620 J. B. Barney, *Gaining and sustaining competitive advantage* (Upper Saddle River, NJ: Pearson Prentice Hall, 1997).

1621 G. Fowler de Avila Monteiro, 'On the relationship between antitrust and strategy: taking steps and thinking ahead' *Revista de Administração* 52 (2017) 317, 328.

1622 For an illustration of the (more limited) guidance provided by the most significant case-law in the US context, see Angela Huyue Zhang, *supra* n 25, pp. 600–605.

1623 OJ 139, 24.12.1962, p. 2921–62.

1624 In addition to exclusivity provisions affecting competition in the market for products and services sold by an agent, the Notice extended immunity to exclusivity provisions affecting competition in the market for agency services. However, this was not on the basis of consideration of genuinity of the agency relationship, but rather on ground of its necessity in protecting the reciprocal interests of an agent and its principal.

of agent in those circumstances would amount to conclusive determination or rebuttable presumption, what transpired from this framework is a relatively simplistic view of ownership and control. This is understandable, considering that much of the ground-work on strategic management was yet to be laid out.

But the Notice included an additional complicating factor for the establishment of a commercial agency defense. In addition to the element of financial risk, a more general requirement for the putative agent was not to “undertake or engage in activities proper to an independent trader”. Subsequent Commission decisions provided clarification on this requirement by linking it to the concept of economic dependence, specifically focusing on the profitability and viability of the agent’s business separate from its relations with the principal¹⁶²⁵. The European Court of Justice initially went even further, suggesting that the existence of a relationship between the agent and suppliers other than the principal would be incompatible with the concept of genuine agency¹⁶²⁶. However, the same Court later seemed to reject the relevance of economic dependence in a seminal decision in *Volkswagen*¹⁶²⁷, by centering the whole inquiry on whether the putative agent would bear “any of the risks”. It should be noted that later decisions clarified that the notion of “any of the risks” should not be read too rigidly¹⁶²⁸, denoting that some degree of risk is acceptable. This leaves open the possibility of assessing the extent to which superior bargaining power is used to impose to another party the acceptance of a disproportionate degree of risk, which may in principle be used to pierce the veil of a putative agency¹⁶²⁹.

Against this backdrop, the Guidelines on Vertical Restraints¹⁶³⁰ adopted by the Commission in 2000 provided the opportunity to harmonize the approaches and simultaneously clarify the distinguishing elements of “genuine” agency. While the Guidelines reiterated the centrality of the criterion of financial or commercial risks, they also qualified the relevant risks into three types: contract-specific risks (such as financing or stock requirements); market-specific investments (e.g. requirements enabling the conclusion or negotiation of the contracts in question); and risks related to other activities that the principal requires the agent to undertake in the same product market (e.g. liability insurance, provision of pre-sale services). In doing so, the Guidelines restricted the type of risks considered material to the definition of agency by excluding any general risks taken in relation to the provision of agency services (e.g., investment in premises or personnel). The Guidelines therefore incorporated insights from the literature on the risk of ex-post opportunism, and its close link with relation-specific investments.

1625 See the decision by the European Commission in *Pittsburg Corning Europe*, OJ 1972 L 272/35; and *European Sugar Industry*, OJ 1973 L 40/17, para. 4.

1626 Case C-311/85, *ASBL Vereniging van Vaamse Reisbureaus v ASBL Sociale Dienst van de Plaatselijke Overheidsdiensten* [1987] ECR 3801.

1627 Case C-266/93 *Bundeskartellamt v Volkswagen AG and VAG Leasing GmbH* [1995] ECR I-3477

1628 See Case T- 325/01, *Daimler-Chrysler AG v. Commission* [2005] ECR II-3319, 103-109; *CEPSA*, supra n. 22, 65.

1629 This was indeed the case in a 2013 decision by the German competition authority finding a breach for an agreement between a hotel and a hotel reservation service: see *Bundeskartellamt, HRS-Hotel Reservation Service*, 9th Decision Division, B 9 – 66/10, Dec. 20, 2013

1630 Commission Notice on Guidelines on Vertical Restraints, OJ 2000 C 291/1.

Another key change in the Guidelines was the expansion of the breadth of the immunity to cover not only exclusivity provisions, but a broader range of restrictions including (a) limitations on the territory in which the agent may sell these goods or services; (b) limitations on the customers to whom the agent may sell these goods or services; and (c) prices and conditions at which the agent must sell or purchase these goods or services¹⁶³¹. However, this expansion is accompanied by an important *caveat*, ruling out the application of the immunity to agreements that facilitate collusion¹⁶³². This position, that was recently confirmed by the European Commission's investigations of Apple and its partners for the switch from a wholesale to an agency model for the sale of e-books¹⁶³³, is functionally equivalent to the carve-out designed by the US Supreme Court for agency agreements that enable a distribution system "to fix prices through many retail outlets"¹⁶³⁴. This policy recognizes the dual role of agency agreements, which can have substantial effects on competition in the market for the products and services sold by the agents, and prevents the immunity from being erected as a shield against the collusive outcome that can be achieved through a common agency framework. One may contend that in the pursuit of this goal, the policy may have cast too wide a net, as it subjects to scrutiny all agreements that *facilitate* rather than *enable* collusion.

However, the inapplicability of the immunity does not rule out the possibility for the conduct to be deemed compatible with article 101 (1), or to raise a defense under art. 101 (3). Furthermore, casting a wider net for facilitating practices is in line with the inferential approach used to deem collusion proven, in particular due to the secretive nature of cartels and the fact that they are typically investigated after a considerable lapse of time. Some concern can be expressed with regard to the extension of the same treatment in a vertical relationship to suppliers who lack knowledge or intent of the collusive outcome, in particular when it is the result of a supplier-initiated restraints¹⁶³⁵. It has been suggested that a more lenient approach could be followed in the latter scenario, with the exception of situations where there is upstream market power¹⁶³⁶—as that creates sufficient conditions of awareness justifying the extension of the inferential approach. A similar reasoning would support an inquiry into market power at the retailer level when assessing the competitive effects of retailer-initiated restraints¹⁶³⁷.

1631 Para. 18

1632 The Guidelines give two examples of this situation: when a number of principals use the same agents while collectively excluding others from using these agents; and when they use the agents to collude on marketing strategy or to exchange sensitive market information between the principals. *Ibid*, para. 20.

1633 See case COMP/39.847, closed with commitment decisions by Penguin Random House Limited (formerly The Penguin Publishing Company Limited) and Penguin Group (USA), LLC (formerly Penguin Group (USA), Inc.).

1634 *Simpson v Oil Co.*, 377 U.S. 13 (1964).

1635 See Mourillo Lubambo, 'Vertical Restraints Facilitating Horizontal Collusion: 'Stretching' Agreement in a Comparative Approach', 4 UCL Journal of Law and Jurisprudence 135 (2015), 141.

1636 Ioannis Lianos, 'The Vertical/Horizontal Dichotomy in Competition Law: Some Reflections with Regard to Dual Distribution and Private Labels', in Ariel Ezrachi and Ulf Bernitz (eds), *Private Labels, Brands and Competition policy* (Oxford University Press, 2009), 186.

1637 Lubambo, *supra* n. 46, 152; Emanuele Giovannetti and David Stallibrass, 'Three Cases in Search of a Theory: Resale Price Maintenance in the UK' 5(3) *European Competition Journal* 647 (2009).

The Guidelines also considered the applicability of the commercial agency immunity to contractual provisions regulating the relationship between principal and agents, reasserting the Commission's lack of concern for exclusivity provisions (as in its 1962 Notice) but short of excluding it altogether from the application of competition law: the Commission merely refers to the absence of anticompetitive effects "in general", which implies that such agreements will not be covered by the immunity. Furthermore, a more restrictive view is taken with respect to the single branding and post-term non-compete agreements, holding that such provisions may infringe article 101(1) if they lead to or contribute to a (cumulative) foreclosure effect on the relevant market where the contract goods or services are sold or purchased¹⁶³⁸. The recognition of the role of intra-brand competition in affecting the conditions of sale in the market of the product or service sold by the agents highlights an important consideration in defining the boundaries of the agency immunity, which should correspondingly inform the analysis of agreements in platform markets. Taken at face value, this implies that a platform with substantial power in a particular product market (say, for instance, Uber with regard to transportation services) cannot invoke the commercial agency immunity for the prices it sets for its contractors entrusted with the delivery of that product (i.e., drivers), at least to the extent those contractors cannot be qualified as employees¹⁶³⁹. Yet, while such conclusion is dispositive once a situation of dominance or of significant impediment to intra-brand competition is established, in the absence of evidence to that effect it will be necessary to examine the conditions governing the relationship between platforms, its sellers, and final consumers. One may not also exclude if Uber's contractors are considered as 'undertakings' subject to the scope of competition law and not employees that Uber may be the hub of a hub and spoke conspiracy. The concept of 'hub and spoke conspiracy' is a form of indirect concerted practice, in particular through information disclosure among competitors, which combines a covert horizontal element and a vertical element, involving communications between suppliers and each of their customers¹⁶⁴⁰. However, it presents some "peculiarities" when compared to other forms of indirect concerted practice in that

"[...] they sit at the crossroads of various theories of harm: they may in fact be seen as nothing more than a spillover of normal vertical conduct; or considered as a sophisticated way in which horizontal cooperation or, at least, an exchange of information may be structured. They may equally be viewed as a practice having the same detrimental effects on competition as a cartel but without the typical

1638 Para. 19.

1639 For a thorough discussion on the merits of this argument, see J. Nowag, 'When sharing platforms fix seller prices' 6 (3) *Journal of Antitrust Enforcement* 382 (2018), 397-401

1640 On this concept, see inter alia O. Odudu, *Indirect Information Exchange: the Constituent Elements of Hub and Spoke collusion*, (2011) 7(2) *European Competition Journal* 205-242; P. J.G. Cayseele, *Hub-and-spoke Collusion: Some Nagging Questions Raised by Economists*, (2014) 5(3) *Journal of European Competition Law & Practice* 164-168; G. L. Zampa & P. Buccirosi, *Hub and Spoke Practices: Law and Economics of the New Antitrust Frontier?*, (2013) 9(1) *Competition Policy International* 91-110; Nicolas Sahuguet & Alexis Walckiers, *Hub-and-Spoke Conspiracies: the Vertical Expression of a Horizontal Desire?*, (2014) *Journal of European Competition Law & Practice* 5 (10): 711-716; Nicolas Sahuguet & Alexis Walckiers, *Selling to a cartel of retailers: a model of hub-and-spoke collusion*, (2013) CEPR Discussion Paper, No. 9385.

characteristics of a cartel. Further, to add to their peculiar nature, [hub and spoke conspiracies] may equally affect intrabrand and interbrand competition”¹⁶⁴¹.

This hybrid horizontal/vertical nature of “hub and spoke” conspiracies raises interesting issues of characterization of the cooperation between the undertakings involved (the collusion element) as well as their qualification as a restriction of competition (the restriction of competition element). With regard to this, an interesting case arose in India. In the case of *Samir Agrawal vs. ANI Technologies Pvt. Ltd. & Uber*¹⁶⁴², it was alleged that ride sharing platforms Ola and Uber were able to fix prices of the rides using algorithms. These fixed prices acted as an imposition of minimum resale price maintenance agreement between the ride sharing apps and their drivers as the latter have no liberty to reject the price calculated by the algorithm or offer their services at a price lower than the said price. However, the Competition Commission of India (CCI) held that there was no ‘resale’ as the platforms were not selling any service to the drivers which they could resell to the riders.

A number of focal questions can be considered relevant to signal the existence of an agency relationship, as opposed to one of distribution: does the platform buy or take ownership of the supplier’s product and assume liability in relation to it? Does it represent its suppliers and contract on their behalf? Does it owe fiduciary duties to act in the supplier’s best interest? And finally, is there a payment of a commission for the activity undertaken?

Each of these questions can be answered in different ways depending on the governance mechanisms adopted by the relevant platform: for instance, a platform for hotel reservations like Booking.com might take on itself the task to negotiate prices by applying special discounts, while that might not be a valid strategy for platforms that provides merely matchmaking services or that features goods satisfying longer term needs, like Etsy. The commission received by the platform might be dependent on sales or fixed, as well as a combination of the two, and might vary significantly if the platform chooses to assume liability *vis a vis* the final customers for the products or services it intermediates. Similarly, the extent of fiduciary duties will differ substantially depending on whether it is apparent that the platform operates as agent for multiple suppliers, and whether it is vertically integrated as a competitor in the market of the products or services being sold.

The question of the dual role of certain platforms remains particularly controversial because the Guidelines have failed to clarify its compatibility with the unity of interests ascribed to an agent and its principal, unlike for the situation of multiple competing principals, thus leaving an open question as to whether the commercial agency immunity can be validly raised in such circumstances. A recent study, drawing on comparative analysis between agency law, competition law, employment and tax law, suggested

1641 G. Zampa & P. Buccirosi, *Hub and Spoke Practices: Law and Economics of the New Antitrust Frontier?*, (2013) 9(1) *Competition Policy International* 91-110, 92.

1642 <https://www.cci.gov.in/sites/default/files/37of2018.pdf>

that the answer cannot, or in any case should not be in the affirmative¹⁶⁴³: the dual role produces a conflict of interest that is tension with the understanding of “single economic entity”, as well as an automatic cost advantage for the platform over its supplier which jeopardizes the core agency principle of “not making a profit at the principal’s expense”¹⁶⁴⁴. After reviewing the standard terms and conditions of six major platforms- Uber, Amazon Marketplace, eBay, Apple App Store, Airbnb and Booking-, the study concluded that such platforms “appear to be, on balance, independent contractors who are agents of their suppliers”¹⁶⁴⁵. In particular, this is the case as they lack ownership over the products or services for which they facilitate transactions, and exclude liability in relation to the performance of those contracts¹⁶⁴⁶; they undertake very limited risk in that regard, for instance relating to the provision of insurance or advertising, which can more generally be related to the platform market rather than the relevant product market¹⁶⁴⁷; and finally, they retain only minimal residual control rights, which appear to be necessary given the specificities of platform markets¹⁶⁴⁸. All in all, these contracts appear to demonstrate that platforms act as agents for their sellers. However, one should bear in mind that they are only of limited comfort for platform operators and their partners/suppliers, as the commercial agency immunity will in any case not apply where there is significant market power either in the market for platform services or in the separate market for products and services which are being sold through the platform. Furthermore, the relevance of considerations of economic dependency in the Court’s and Commission’s decisions reveals a concern not only with market power, but with the broader realm of superior bargaining power. This does not require evidence of market power in a traditional sense- focused on a firm’s ability to raise prices and reduce output¹⁶⁴⁹. As a result, to the extent that the restrictions are motivated not by transactional efficiency, but primarily by the use of superior bargaining power to capture value from a resource-based perspective, it is questionable that the default regime of immunity (or forbearance) should indeed apply.

It is also worth mentioning that the non-application of the agency immunity does not prejudice the substantive analysis conducted under article 101 (1) and 101 (3), which require a defendant to produce evidence indicating that any restriction of competition is ancillary to the adoption of a procompetitive measure, or, respectively, that the efficien-

1643 Pinar Akman, ‘Online Platforms, Agency, and Competition Law: Mind the Gap’, available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3419067, 39-40

1644 Ibid., 75

1645 Ibid., 57

1646 Ibid., 59

1647 Ibid., 51

1648 Ibid., 70-72. In particular, the “special” type of provisions are the following: first, clauses prevent suppliers from contacting parties outside the platform, so as to prevent disintermediation that would cause free riding on the platform’s match-making. Second, clauses allow the platform to discontinue relationships with suppliers, typically on ground of failing to meet certain quality standards.

1649 For an overview of the concept of superior bargaining power, see I.s Lianos and C. Lombardi, ‘Superior Bargaining Power and the Global Food Value Chain: The Wuthering Heights of Holistic Competition Law?’ Centre for Law, Economics and Society Research Paper Series: 1/2016

cies generated by the restraint outweigh their anticompetitive effects. This particular claim structure appears to be sufficient to address the concerns raised by commentators with regard to the rigidity of the commercial agency doctrine, which stems from a criticism about its focus on risk as opposed to the efficiency justifications that are examined under some case-law of the US Court of Appeals for the 7th and the 4th Circuit¹⁶⁵⁰. While the application of the commercial agency immunity should not lose sight of its efficiency-enhancing purpose, it remains an imperfect procedural shortcut and does not prevent deeper engagement with the procompetitive aspects of the restraints that fall outside of its scope. For this reason, it should be constructed narrowly and paying particular attention to the caveats that have been made in this Section.

6.2.3. Online distribution of content and competition law

Online distribution of digital content is intrinsically dependent on the applicable legal framework for the transmission of copyrighted works. International copyright law grants exclusive rights for authors of literary and artistic works¹⁶⁵¹ and for phonograms producers including the right to reproduce, distribute, rent and make available their work¹⁶⁵², as well as certain minimum rights for performers and broadcasting organizations including the right to prevent the rebroadcasting or fixation of their broadcasts, and the reproduction of fixations made without consent or outside the permitted exceptions¹⁶⁵³. Equivalent protections are laid down for members of the World Trade Organization as part of the Agreement on Trade-Related aspects of Intellectual Property (TRIPS agreement)¹⁶⁵⁴, and are then implemented at the national or regional (including EU) level¹⁶⁵⁵.

In the European Union, intellectual property has always been a matter of shared competence between the EU and Member States, meaning that the latter can intervene to the extent that the EU has not exercised its competence¹⁶⁵⁶. One implication of that has been a tension between the national protection of intellectual property, which is explicitly safeguarded by the Treaty¹⁶⁵⁷, and the principles of competition and free movement in the EU single market. This tension is resolved by recognizing that while national law is free to establish its rules on intellectual property rights EU competition law can limit the *exercise* of such rights granted. A concrete mechanism for limiting that exercise is

1650 Zhang, *supra* n. 25.

1651 Berne Convention for the Protection of Literary and Artistic Works, art. 10-14.

1652 WIPO Performances and Phonograms Treaty (WPPT) (1996), art. 11, 12 and 14.

1653 International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, art. 7 and 13.

1654 See in particular art. 9, 11 and 13

1655 EU law for instance harmonizes the rights to reproduction, distribution and communication to the public in articles 2-4 of Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society.

1656 This has been changed by the Lisbon Treaty with regard to external policy on intellectual property, which pertains to EU's exclusive competence. See Art. 207 (1) TFEU.

1657 See in particular article 345 TFEU, according to which "The Treaties shall in no way prejudice the rules in Member States governing the system of property ownership".

the application of the principle of exhaustion, established for the first time in *Deutsche Grammophone*¹⁶⁵⁸ (and subsequently injected into various instruments of EU intellectual property law): once a copyright holder has exercised his or her exclusive right of distribution by putting his work on the market, that right can no longer be exercised. In the *Deutsche Grammophone* case, that meant that copyright could not be used to prevent parallel imports of the copyrighted work¹⁶⁵⁹. Such ruling aligned with another seminal case, *Consten v. Grundig*, where the ECJ used competition law to prevent artificial fragmentation of the EU market through a system of licenses granting absolute territorial protection, i.e. exclusive territorial licenses combined with prohibitions for other licensees to make deliveries outside their assigned territories. The difference between a so called “open” exclusive license and one with absolute territorial protection was reiterated some years later in *Nungesser*, noting that such protection manifestly went beyond what is indispensable for the improvement of production or distribution or the promotion of technical progress¹⁶⁶⁰. Ultimately, this line of cases led to the recognition of absolute territorial protection as a hardcore restriction of competition, which cannot benefit from the application of the exemption framework granted by the Vertical Block Exemption Regulation (with the exception of sales outside one’s place of establishment by a member of a selective distribution system)¹⁶⁶¹. It is also worth mentioning that the Commission notes in its Guidelines on Vertical restraints that absolute territorial exclusivity may be necessary for a certain period of time, generally two years, if the distributor is entering a new market where a significant investment is required¹⁶⁶².

The Court of Justice also considered the compatibility of exclusive licenses in the specific context of online distribution of copyrighted content in *Coditel*¹⁶⁶³. In particular, it clarified that the exhaustion principle does not find application with regard to the distribution of digital goods, where the availability to the public is separable from the circulation of the material form¹⁶⁶⁴. It then went further to explain that in this context, a system of exclusive territorial licenses would not necessarily restrict competition: it could be justified by the characteristics of the cinematographic industry, especially those relating to dubbing and subtitling, to the possibilities of television broadcast, and to the sys-

1658 C-78/70 *Deutsche Grammophon Gesellschaft mbH v Metro-SB-Großmärkte GmbH & Co. KG.*, ECLI:EU:C:1971:59

1659 The Court also specified that the mere exercise of the right does not automatically constitute an abuse of dominant position, but that would be the case if such exercise has the power to impede the maintenance of effective competition over a considerable part of the relevant market. *Ibid.*, para. 19.

1660 *Nungesser*

1661 Commission Regulation (EU) No 330/2010 of 20 April 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and concerted practices, OJ L 102, 23.4.2010, p. 1–7, art. 4 (b)

1662 Guidelines, para. 62

1663 Case 262/81, *Coditel SA, Compagnie générale pour la diffusion de la télévision, and others v Ciné-Vog Films SA and others* [1982] ECR 03381, para. 11

1664 This view was recently confirmed by the ECJ in *UsedSoft*, where it held that exhaustion of a computer program would require the acquirer to delete or make the original copy unusable at the time of resale. See Case C-128/11 *UsedSoft GmbH v. Oracle International Corp.*, ECLI:EU:C:2012:407 para. 78.

tem of financing cinematographic production in Europe¹⁶⁶⁵. In *Murphy*¹⁶⁶⁶, the Court confirmed that there is nothing anticompetitive in the use of exclusive territorial licenses for broadcasting. However, it took issue with the additional obligation inserted in licensing agreements that prevented the sale of decoder cards outside the licensed territory, and which operated in conjunction with a UK law that prohibited the supply and possession of foreign decoders. This constituted an infringement by object because it was designed to ensure compliance with the territorial limitation and therefore prohibit the broadcasters from effecting any cross-border provision of services¹⁶⁶⁷. The Court also importantly articulated for the first time, in evaluating the compatibility of the UK law with the freedom to provide services in EU, the view that the specific subject matter of copyright is to receive *appropriate* remuneration for the use of copyrighted work¹⁶⁶⁸, not to guarantee the right holders concerned the opportunity to demand the highest possible remuneration¹⁶⁶⁹. It went further to specify that in order to be appropriate, such remuneration must be reasonable in relation to the economic value of the service provided, in particular in relation to the actual or potential number of persons who enjoy or wish to enjoy the service; and even went as far as admitting that it may be appropriate to request a higher remuneration in the presence of territorial exclusivity¹⁶⁷⁰. However, it specifically ruled out that such remuneration could be given in exchange for *absolute* territorial exclusivity, because that would result in artificial price differences between the partitioned national markets¹⁶⁷¹.

The legality of absolute territorial licensing is a recurring issue for the European Commission, which recently triggered the investigation of Sky UK and six American film studios for contracts that included the reciprocal obligation not to respond to unsolicited requests outside the assigned territory (see *infra*, 5.3.1.1.)¹⁶⁷². While the investigation was closed with commitments offered to address the Commission's concerns, we should not take for granted that an exclusive license combined with a contractual prohibition of cross-border transmission constitutes an infringement of article 101 TFEU: such prohibition may indeed be justified where the transmission in question would amount to a copyright violation in the country of destination¹⁶⁷³.

1665 Coditel, *supra* n. 71, para. 16

1666 C-403/08 and C-429/08 Joined cases Football Association Premier League Ltd and Others v QC Leisure and Others and Karen Murphy v Media Protection Services Ltd., ECLI:EU:C:2011:631

1667 Para. 142

1668 This is more specific of the characterization made by the Court of First Instance (and later upheld by the ECJ in *Magill*) that the essential function of copyright is "to protect the moral rights in the work and ensure a reward for the creative effort". See Case T-69/89 RTE v Commission [1991] ECR II-485, para. 71; and Case T-76/89 ITP Limited v Commission [1991] ECR II-575, para. 56.

1669 Para. 108. Note that this principle is now specifically enshrined in the recently approved Directive on Copyright in the Digital Single Market. See Directive on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, OJ L 130, 17.5.2019, pp. 92-125, art. 18.

1670 Para. 109

1671 Para. 115

1672 See the Press Release: https://europa.eu/rapid/press-release_IP-16-1530_en.htm

1673 Pablo Ibáñez Colomo, 'Copyright licensing and the EU digital single market strategy'. LSE Law, Society and Economy Working Papers 19/2015, p. 10.

What is crucial is to verify whether the measure adopted by a copyright owner does not go beyond what is necessary to protect the right to receive an appropriate remuneration. EU caselaw shows that a similar assessment of compatibility would apply if the copyright owner were to adopt technological measures to prevent or restrict unauthorized acts with regard to a copyrighted work, for instance filtering and watermarking. In particular, the Court has held that copyright owners cannot prohibit the use of devices or activities which have a commercially significant purpose or use other than circumventing a technological protection measure for unlawful purposes¹⁶⁷⁴. This implies that, before granting protection against the use or distribution of a particular circumventing device, it will be necessary “to examine whether other measures or measures which are not installed [...] could have caused less interference with the activities of third parties by implying fewer limitations to those activities, while still providing comparable protection of that rightholder’s rights”¹⁶⁷⁵.

A similar reasoning has been followed in the US context to reject attempts to stretch beyond the scope of copyright the legal protection granted to the use of technological protection measures, such as Digital Rights Management systems.¹⁶⁷⁶ Considering that technological protection measures may be automatically enforced outside one’s jurisdiction, mechanisms to limit a copyright owner’s ability to extract profits beyond borders become particularly important. This is especially relevant for the enforcement of access and use restrictions in emerging economies like BRICS, where due to the prohibitive costs for the majority of the population piracy represents the main form of access to a variety of media goods¹⁶⁷⁷. As noted by a multi-country study focused primarily on Brazil, India, Russia and South Africa, the prevalence of multinationals media firms leads to business models that protect the pricing structure of high-income countries and prevent the emergence of competitors catering to the local needs¹⁶⁷⁸.

Against this backdrop, it is logical to expect in BRICS jurisdictions a different sensibility to restrictions against parallel imports from the one that prevails in the EU context. The difference is likely to transpire also with regard to the approach to copyright enforcement against online content-sharing platforms, which are now specifically subject under the new EU copyright directive to an obligation to seek authorization for making available the content they host¹⁶⁷⁹. Once again, it can be discussed whether the more strin-

1674 Case C-355/12, *Nintendo Co Ltd and Others v PC Box Srl, 9Net Srl* [2012] OJ C 295

1675 *Ibid.*, para. 33

1676 For a review of the anticompetitive use of Digital Rights Management technologies and the doctrine developed by the US Court of Appeal for the Federal Circuit to prevent it, see Nicolo Zingales, ‘Digital Copyright, “Fair Access” and the Problem of DRM Misuse’, *Boston College Technology and Intellectual Property Forum* (2012), 1-36; ‘The response of the Federal Circuit to DRM Misuse: The DMCA is to be interpreted consistently with the core objective of copyright’, *Journal of Internet Law* (2012) 16 (6) 19-31.

1677 Joe Karagnis (ed.), *Media Piracy In Emerging Economies* (Social Science Research Council, 2011), available at <http://piracy.ssrc.org>, 1.

1678 *Ibid.*, 2.

1679 Directive 2019/790 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, OJ L 130, 17.5.2019, pp. 92-125, art. 17 (1). Failing authorization, those platforms are considered liable unless they demonstrate to have made best efforts to obtain an authorization, best efforts to ensure the unavailability of

gent regulations adopted in the EU context will necessarily provide a valid justification for restrictions included in licenses between copyright holders and platforms operating outside the EU, and for terms used by these platforms in their user agreements. This illustrates that the interlinkage of copyright and competition enforcement in online content distribution is likely to trigger more competitive issue than has historically been the case, specifically given the prominence of large multinational platforms and the insufficient coordination of local and inter-regional initiatives of platform regulation.

6.3. A bestiary of online vertical restraints: a comparative perspective

We briefly discuss some of the most common online vertical restraints below.

6.3.1. Restrictions on sales

6.3.1.1. Geo-blocking and geo-filtering

The recent efforts to promote a “digital single market” in the EU testify to the continuing relevance of the idea of economic integration and of the need to break down “national silos in telecoms regulation, in copyright and data protection legislation, in the management of radio waves and in the application of competition law”, all of which reduce the “great opportunities offered by digital technologies, which know no borders”¹⁶⁸⁰. The digital single market aims to allow seamless access for consumers and businesses to online goods and services across Europe. This may be affected by practices of ‘geo-blocking’ and ‘geo-filtering’.

Geo-blocking ‘refers to practices used for commercial reasons by online sellers that result in the denial of access to websites based in other Member States’¹⁶⁸¹. Geo-filtering consists of offering different terms and/or conditions depending on the location of the user, when situated in a different Member State than that of the online provider¹⁶⁸². Geo-blocking may occur even if consumers are able to access the website, when they are not able to purchase products or services from it, particularly when they are re-routed to a local website of the same company with different prices or a different product or service. Geo-filtering occurs when ‘geo-localising practices are used as a result of which different prices are automatically applied on the basis of geographic location, for example when online car rental customers in one ... State pay more for the identical car rental

specific works and other subject matter for which the rightholders have provided the service providers with the relevant and necessary information; and in any event acted expeditiously, upon receiving a sufficiently substantiated notice from the rightholders, to disable access to, or to remove from their websites, the notified works or other subject matter, and made best efforts to prevent their future uploads. See art. 17 (4).

1680 J.C. Juncker, Political Guidelines for the next European Commission (July 15th, 2014), available at https://ec.europa.eu/commission/sites/beta-political/files/juncker-political-guidelines-speech_en.pdf.

1681 Commission Staff Working Document, Geo-blocking practices in e-commerce – Issues paper presenting initial findings of the e-commerce sector inquiry conducted by the Directorate-General for Competition, SWD(2016) 70 final, para. 32.

1682 Ibid., para. 33.

in a given destination than online customers in another ... State¹⁶⁸³. More generally, geo-filtering also may occur when online providers allow users to access and purchase consumer goods/digital content services cross-border, but offer different terms and/or conditions depending on the location of the user in a State different from that of the provider¹⁶⁸⁴. Geo-blocking or geo-filtering may be applied by various operators: retailers operating an online store, online marketplaces and price comparison websites¹⁶⁸⁵.

Following a sector inquiry whose initial findings were published in 2017¹⁶⁸⁶, the European Commission found that geo-blocking is applied by the majority of online digital content providers and is largely based on contractual restrictions, although it may also be adopted through unilateral conduct. The Commission also acknowledged the existence of 'technical geo-blocking', which aims to restrict a user's ability to access and use content in a given Member State from outside that Member State's territory (access and portability restrictions), which is often used for digital content services¹⁶⁸⁷. Technical geo-blocking may limit the user's ability to play previously downloaded content in certain territories, restrict the catalogue of content and/or services available to a given user in different territories, and inhibit the ability of an existing user to access the service in different territories¹⁶⁸⁸. One of the key findings of the sector inquiry was that almost 60% of digital content providers who participated in the inquiry have contractually agreed with right holders to "geo-block", as online rights are to a large extent licensed on a national basis or for the territory of a limited number of Member States which share a common language. According to the Commission, "(g)eo-blocking is most prevalent in agreements for TV series (74 %), films (66 %) and sport events (63 %). It is less prevalent in agreements for other digital content categories such as music (57 %), children's TV (55 %), non-fiction TV (51 %) and news (24 %)"¹⁶⁸⁹. The Commission stressed that any competition enforcement in relation to geo-blocking would have to be conducted on a case-by-case analysis of potential justifications for the restrictions imposed. The Commission's Staff Discussion paper makes it clear that limiting the ability of European users to shop online cross borders, 'may run counter to the objective of establishing a *single market*'¹⁶⁹⁰. Although market integration is a distinct objective of EU competition law, this may also be considered as an important competition concern in other jurisdictions.

1683 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2015) 192 final, at 6.

1684 Commission Staff Working Document, Geo-blocking practices in e-commerce – Issues paper presenting initial findings of the e-commerce sector inquiry conducted by the Directorate-General for Competition, SWD(2016) 70 final, para. 33.

1685 Commission Staff Working Document, Geo-blocking practices in e-commerce – Issues paper presenting initial findings of the e-commerce sector inquiry conducted by the Directorate-General for Competition, SWD(2016) 70 final, para. 67.

1686 See Final report on the e-commerce sector inquiry (10 May 2017) http://ec.europa.eu/competition/antitrust/sector_inquiry_final_report_en.pdf

1687 Commission Staff Working Document, Geo-blocking practices in e-commerce – Issues paper presenting initial findings of the e-commerce sector inquiry conducted by the Directorate-General for Competition, SWD(2016) 70 final, para. 174.

1688 Ibid., para. 176.

1689 Ibid., para. 66.

1690 Commission Staff Working Document, Geo-blocking practices in e-commerce – Issues paper presenting initial findings of the e-commerce sector inquiry conducted by the Directorate-General for Competition, SWD(2016) 70 final, para. 41.

Among the various tools, including the implementation of competition law, the European Commission has adopted specific rules prohibiting geo-blocking and geo-filtering that may raise barriers to cross-border online activity¹⁶⁹¹.

The CJEU took a quite restrictive position for absolute territorial restrictions included in licensing agreements for broadcasting services in *Premier League/Murphy*, where it was held that certain licensing provisions preventing a satellite broadcaster from providing broadcasts to consumers outside the licensed territory and thus granting him an absolute territorial exclusivity in the area covered by the license eliminated all competition between broadcasters, partitioned national markets and constituted a restriction of competition by object under Article 101(1) TFEU and cannot be justified under Article 101(3) TFEU.

The Commission has also taken a similar restrictive position with regard to licensing agreements preventing the cross-border provision of online pay-TV services through satellite to consumers outside the licensed territory. The Commission opened an investigation against Sky UK and each of six major US film studios (Disney, NBC Universal, Paramount Pictures, Sony, Twentieth Century Fox and Warner Bros) for having bilaterally agreed to put in place contractual restrictions that prevent Sky TV from allowing EU consumers located elsewhere to access, via satellite or online, pay-TV services available in the UK and Ireland.¹⁶⁹² According to the Commission's press release, such clauses limit Sky UK's ability to accept unsolicited requests for its pay-TV services from consumers located in other Member States and contain clauses requiring studios to ensure that in their agreements with other broadcasters they include clauses preventing them from making their pay-TV services available in the UK and Ireland. According to the Commission's press release, in the absence of these restrictions, 'Sky UK would be free to decide on commercial grounds whether to sell its pay-TV services to such consumers requesting access to its services, taking into account the regulatory framework including, as regards online pay-TV services, the relevant national copyright laws'. This competition law investigation forms part of the initiative of the Commission to examine contractual restrictions on passive sale outside the licensed territory in agreements between studios and other major broadcasters based in the EU, such as Canal Plus, Sky Italia, DTS in Spain, Sky Deutschland)¹⁶⁹³ and to reform the legislative framework, in the context of the Single Digital Market Strategy, in order to facilitate wider access to online content across borders in the EU.¹⁶⁹⁴ The proposed rules will also oblige online content service

1691 Regulation (EU) 2018/302 of the European Parliament and of the Council of 28 February 2018 on addressing unjustified geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulations (EC) No 2006/2004 and (EU) 2017/2394 and Directive 2009/22/EC, [2018] OJ L 601/1 (hereinafter Geo-blocking Regulation).

1692 European Commission, Press Release, Antitrust: Commission sends Statement of Objections on cross-border provision of pay-TV services available in UK and Ireland (July 23, 2015), available at europa.eu/rapid/press-release_IP-15-5432_en.htm.

1693 European Commission, Press Release, Antitrust: Commission investigates restrictions affecting cross border provision of pay TV services (January 13, 2014), available at europa.eu/rapid/press-release_IP-14-15_en.htm.

1694 See, for instance the Commission's proposals to modernise EU copyright rules and review the EU Satellite and Cable Directive: Council Directive 98/93/EEC of 27 September 1993 on the coordination of certain rules concerning copyright

providers to offer cross-border portability to their subscribers who are temporarily outside their home country.¹⁶⁹⁵

Brazil: Resolution CADE 20/99 has a specific provision on territory restrictions and customer base, by which the manufacturer determines geographic boundaries to the operation of the distributors or dealers. Accordingly, practices of this nature may restrict competition and competitors' entry in several regions, facilitating collusive practices and unilateral increases of manufacturers' market power. Nevertheless, considering that the practice shall be analysed under the rule of reason, Resolution CADE 20/99 also provides that the possible benefits in terms of transactional cost savings should be taken into consideration when reviewing these cases.

6.3.1.2. Online sale bans and platform bans and restrictions

A retailer may sell its goods through a well-known platform if it is able to gain greater exposure to customers than if it were to operate exclusively under its own brand. This is similar to the shop-in-shop concept, in which a retailer is granted a concession in a larger retailer outlet. The concessionaire benefits from the foot-fall that is already attracted to the retail location.

A number of supply systems are organised in the form of what has been called 'selective distribution', in which the suppliers limit the number of distributors that can join their distribution networks, requiring distributors to satisfy certain conditions. Although selective distribution provides considerable benefits to consumers, as it promotes quality certification, which is particularly important for certain categories of products (e.g. luxury goods, electronic goods etc.) it may also lead to the exclusion of some purely online distributors from the possibility to participate to some distribution networks. Online retailers and marketplaces are also reluctant to incur the costs implicit in a selective distribution system and have been quite active in demanding a strict application of competition law so as to limit the possibility of suppliers to impose restrictions in their selective distribution networks as to online sales, discriminating between offline and online commerce, such as online sales' bans, restrictions on marketplaces in the context of an online selective distribution system, or bans to use price comparison tools.

There is significant case law on these issues in the EU, both at the EU competition law and national competition law levels¹⁶⁹⁶. With regard to bans on online sales, a survey of the case law in various member States, the OECD summarize the state of the law as follows:

and rights related to copyright applicable to satellite broadcasting and cable retransmission [1993] OJ L 248/15.

1695 European Commission, Press Release, Commission takes first steps to broaden access to online content and outlines its vision to modernise EU copyright rules (December 9th, 2015), available at europa.eu/rapid/press-release_IP-15-6261_en.htm. The new framework emerging out of these initiatives will enable people to use services such as video streaming in order to access content on Netflix, iPlayer, Amazon Instant Video and HBO Go, requiring these streaming services to open their local content library in any EU member state.

1696 See, C-439/09 *Pierre Fabre Dermo-Cosmétique SAS v Président de l'Autorité de la concurrence and Ministre de l'Économie, de l'Industrie et de l'Emploi* [2011] ECR I-9419; Case C-230/16, *Coty Germany GmbH v Parfümerie Akzente GmbH*, ECLI:EU:C:2017:941.

The case law on perfumes and high-end cosmetics supports the argument that, whenever a selective distribution system is justified for luxury or experience goods, suppliers may impose restrictions on Internet sales that have the objective to protect the demand enhancing investments made either by the manufacturer or by the retailers. One way to achieve this objective is to allow only those retailers that also run a brick-and-mortar outlet to operate on the Internet. The idea is that these retailers have an interest in preserving the value of the investments that they have made in the physical point of sale and that they would internalize, at least partially, the negative effects that inappropriate e-commerce practices would have on these investments. In order to have an effective alignment of interests, sales in the physical shop must be relevant and this justifies also the imposition of quantity limits on Internet sales. These restrictions prevent the operation of a pure on-line distributor. However, a complete ban of on-line sales or the application of discriminatory conditions that would impede their development is still presumed to be illegal and the parties have the burden to prove that there exist “objective” justifications for such measures [...] Of course, much depends on the standard of proof that it will be required to prove the existence of “objective” justifications and whether the manufacturer will be also asked to show’.¹⁶⁹⁷

The Commission has also examined in its recent e-commerce enquiry whether restrictions on the use of marketplaces or price comparison tools can amount to a restriction of competition by object.

Although online sales bans are prohibited under EU competition law, in *Pierre Fabre*, the CJEU opened some possibilities for justification, under Article 101(3) TFEU, but excluded as a legitimate justification the objective of preserving brand image or other economic justifications.¹⁶⁹⁸ In *Coty*, the CJEU held that suppliers of luxury goods can prohibit the members of their selective distribution system from making online sales through discernible third-party platforms, to the extent this is appropriate to preserve the luxury image of those goods, this prohibition being compatible with Article 101(1) TFEU and not a restriction of competition by object¹⁶⁹⁹. The CJEU distinguished between a platform ban, which is permissible, as it only restricts a specific kind of online sale¹⁷⁰⁰, and an absolute ban on internet sales, which is not permitted under Article 101(1) TFEU and which forms a restriction of competition by object following *Pierre Fabre*¹⁷⁰¹.

¹⁶⁹⁷ OECD, Vertical Restraints for On-line Sales, DAF/COMP(2013)13, 34.

¹⁶⁹⁸ C-439/09 *Pierre Fabre Dermo-Cosmétique SAS v Président de l'Autorité de la concurrence and Ministre de l'Économie, de l'Industrie et de l'Emploi* [2011] ECR I-9419.

¹⁶⁹⁹ Case C-230/16, *Coty Germany GmbH v Parfümerie Akzente GmbH*, ECLI:EU:C:2017:941, para. 51.

¹⁷⁰⁰ *Ibid.*, para. 52. See also, the Opinion of AG N. Wahl in Case C-230/16, *Coty Germany GmbH v Parfümerie Akzente GmbH*, ECLI:EU:C:2017:603 (arguing that a supplier restricting its authorised distributors in a selective distribution system to sell the contract products via third party platforms cannot, in the present state of development of e-commerce, be assimilated to an outright ban on or a substantial restriction of internet sales, in particular if authorised distributors are allowed to distribute the contract products via their own internet sites).

¹⁷⁰¹ C-439/09 *Pierre Fabre Dermo-Cosmétique SAS v Président de l'Autorité de la concurrence and Ministre de l'Économie, de l'Industrie et de l'Emploi* [2011] ECR I-9419.

The European Commission also took the view that restrictions on the use of marketplaces ‘do not have as their object a restriction of the territory or the customers to whom the retailer in question may sell or the restriction of active or passive sales to end users’, they are ‘not aimed at segmenting markets in the internal market based on territory or customers’¹⁷⁰², and consequently an absolute ban on the use of marketplaces should not constitute a hardcore restriction¹⁷⁰³. However, the Commission envisages the possibility that bans on the use of marketplaces may be found incompatible with EU competition law depending on the circumstances¹⁷⁰⁴, such as the ‘importance of marketplaces as an online sales channel in relation to the product and geographic market in question, the type of restrictions applied (absolute ban or qualitative criteria) as well as the credibility of brand protection considerations and the need for pre- and post-sale advice will be important elements in the analysis’ or the fact that ‘the manufacturer has accepted the marketplace operator as an authorised seller within its selective distribution agreement’, the latter making brand protection considerations ‘less convincing’¹⁷⁰⁵.

The EU e-commerce Sector Inquiry Report also considers the compatibility with EU competition law of bans to use price comparison tools¹⁷⁰⁶. Price comparison tools compare prices of different retailers and establish extensive price transparency in retail markets with standardised products. The actual sale takes place on the website of the (authorised) retailer. Their use can be prevented by absolute bans, or the prohibition of the use of brand names as search terms, among other practices¹⁷⁰⁷.

Against the backdrop of the above discussion in the European Union, it is interesting to note that the trend in some BRICS jurisdiction has been in a different direction, namely to see e-commerce platforms as a crucial vehicle for the implementation of selective distribution, rather than as a channel potentially jeopardizing the goodwill that such selective distribution is aimed to promote.

Brazil: The Brazilian Competition Law does not provide for any specific guidance in respect to selective distribution. Nevertheless, an assessment by CADE will likely be made under the rule of reason on a case-by-case basis, balancing the anticompetitive effects and the economic efficiencies of the practice. In addition, the assessment would likely relate to some of the provisions established by Resolution CADE 20/99 for restrictions on territory and customer base or refusal to deal. Their potential anticompetitive effects, therefore, could be related to blockage to, and increase in, barriers to entry into the distribution or supply channels.

India: India indeed offers one example of a selective distribution system enforced through removal from a platform of all products sold by unauthorized resellers. In *Ashish Ahuja v Snapdeal*, Mr. Ashish Ahuja who sells, among other things, certain SanDisk

1702 Commission Staff Working Document E-commerce, para. 508.

1703 Section 4.4.8. of the Commission Staff Working Document E-commerce.

1704 European Commission, Final report on the E-commerce Sector Inquiry, COM(2017) 229 final, para. 43.

1705 Commission Staff Working Document E-commerce, paras 513-514.

1706 Section 4.5.4. of the Commission Staff Working Document E-commerce.

1707 Commission Staff Working Document, p. 166.

products, lamenting that Snapdeal had stopped the sale of his items on its online e-commerce platform. The complainant argued that this action was taken pursuant to a restriction imposed by Snapdeal that only authorized vendors sell SanDisk products on its platform, which was in itself a requirement introduced upon agreement with SanDisk. Although the complainant alleged that the agreement between Snapdeal and SanDisk violated provisions of Section 3 of the Competition Act, which deals with anti-competition agreements, no specific provisions of Section 3 was alleged to have been infringed. CCI held that “insistence by SanDisk that the storage devices sold through the online portals should be bought from its authorised distributors by itself cannot be considered as abusive, as it is within its rights to protect the sanctity of its distribution channel”. SanDisk had earlier issued a circular that the full range of sales and warranty services available for its products would be available to only those SanDisk products brought from its authorised national distributors.

More interestingly for purposes of the interaction between offline and online, the CCI in this case defined the relevant market quite broadly. It observed that buyers tend to weigh the options available to them in offline and online markets before making a final decision, taking into account the differences in discounts and shopping experience. A significant increase in price in one segment will cause the buyer to shift to the other segment and therefore “these two markets are different channels of distribution of the same product and are not two different relevant markets.”

Other cases revolve around the effects of exclusive dealings on platforms. In *Mohit Manglani v Flipkart and others*, the informant complained that India’s e-commerce websites had entered into exclusive agreements with sellers of goods and services violating provisions of section 3(4) of the Competition Act, which prohibits vertical agreements between manufacturers and distributors if they cause or is likely to cause appreciable adverse effect on commerce in India. Further, the complainant alleged that each e-commerce platform had a 100 per cent market share for the product that was exclusively available only on their e-commerce platform, therefore leading to an abuse of such dominant position.

The CCI held that vertical agreements between producers of goods and services with the e-commerce firms does not result in an appreciable adverse effect on commerce. It reasoned that:

“It does not seem that such arrangements create any entry barrier for new entrants. It seems very unlikely that an exclusive arrangement between a manufacturer and an e-portal will create any entry barrier as most of the products which are illustrated in the information to be sold through exclusive e-partners (OPs) face competitive constraints.”

With respect to the allegation of abuse of dominant position by e-commerce firms, the CCI refused to accept the complainant’s narrow definition of the relevant market. The complainant had argued that if a given book is exclusively distributed through an e-commerce firm, it is not substitutable by another book distributed by brick-and-mortar

stores, hence making it a separate relevant market. The CCI disagreed, holding that individual products cannot be construed as a relevant market by themselves. Further, the CCI held that irrespective of whether it considered e-commerce market as a separate relevant product market or as a sub-segment of the overall market for distribution, it was of the view that none of the e-commerce platforms was individually dominant in either the overall distribution market or for the online segment, and therefore an assessment of the alleged abuse of dominance by such e-commerce firms was not required.

It is worth noting that since the CCI's order, Flipkart has been acquired by Walmart and as Amazon weighs up its presence in the Indian e-commerce market, with rumours of Reliance's imminent launch of its own e-commerce platform, the market share of e-commerce firms is constantly fluctuating over time. Future assessments by the CCI in the future may result in different conclusions, if the regulator finds that a particular e-commerce firm was individually dominant in India.

Furthermore, an overview of the Indian legal framework on platform restrictions cannot be complete without mentioning the recently adopted (February 2019) Foreign Direct Investment Policy on E-Commerce, where the government restricted e-commerce companies from selling products of companies in which they have an equity interest. It also prevented e-commerce companies from entering into exclusive agreements with sellers. The Policy states as follows¹⁷⁰⁸:

- An entity having equity participation by e-commerce marketplace entity or its group companies or having control on its inventory by e-commerce marketplace entity or its group companies, will not be permitted to sell its products on the platform run by such marketplace entity.
- e-Commerce marketplace entity will not mandate any seller to sell any product exclusively on its platform only.

6.3.2. Price discrimination and targeting

The internet enables advertising to be targeted or personalised.¹⁷⁰⁹ Datafication may enable firms to develop personalised pricing strategies. Behavioural pricing or personalised price discrimination, person-specific pricing, a species of first degree price discrimination, arises when sellers charge different prices to different buyers based upon each buyers elasticity of demand.¹⁷¹⁰ It is possible that such practices may be qualified

¹⁷⁰⁸ <http://pib.nic.in/PressReleaselframePage.aspx?PRID=1562493>

¹⁷⁰⁹ David S. Evans, The Economics of the Online Advertising Industry, 7 R. OF NETWORK ECON. 3, (Sept. 2008), available at <http://ssrn.com/abstract=1086473>; see also UK Office of Fair Trading, Online Targeting of Advertising and Pricing, OFT 1231 (May 2010), <http://www.of.gov.uk/OFTwork/markets-work/completed/online-targeting>

¹⁷¹⁰ R Calo, 'Digital Market Manipulation', (2014) 82 George Washington Law Review 995. W. Davies, The Happiness Industry: How the Government & Big Business Sold Us Wellbeing (Verso, 2015). M Bourreau et al., Big Data and Competition Policy: Market Power, personalised pricing and advertising, CERRE Project Report (February 2017); OFT1488, The economics of online personalised pricing (May 2013), available at http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.of.gov.uk/shared_of/research/of1488.pdf

as a form of price discrimination prohibited by competition law or other statutes.¹⁷¹¹

Price discrimination is objectionable when a price difference is not justified by a cost difference. Need to distinguish online v offline, where costs differ, from other cases of differential pricing. In the EU, one condition for such practice to fall under Article 102(c) TFEU is that “other trading partners” are placed at a “competitive disadvantage”, which may suggest that this provision may not apply to discrimination on price or other parameters of competition against final consumers. However, this language has not prevented the Commission from apply Article 102(c) to final consumers in *Deutsche Post*, in particular consumers of postal services, which due to the behaviour of Deutsche Post were affected negatively by having to pay prices for these services which were “higher than those charged to other senders and by having their mailings delayed significantly” The Commission noted that:

“Article [102 TFEU] may be applied even in the absence of a direct effect on competition between undertakings on any given market. This provision may be also be applied in situations where a dominant undertakings behaviour causes damage directly to consumers”.¹⁷¹²

Further, the case law does not require evidence of a competitive disadvantage, which in some cases has been presumed.

It might be argued that personalised pricing is contrary to Article 102(a), the claim being that such pricing amounts to an “unfair purchase or selling prices or other unfair trading conditions.” This is examined in the relevant chapter concerning abusive practices. At first sight, dynamic pricing, real time pricing and price optimization do not raise competition law concerns to the extent they are unilaterally adopted and do not form part of a collusive scheme.

6.3.3. Across Platform Parity Agreements (APPAs)

Most favoured customer (MFC) or Most Favoured Nation (MFN) clauses, also called parity clauses or Across Platform Parity Agreements (APPAs), have also recently attracted the attention of competition authorities. These are broadly defined as agreements under which a seller agrees that a buyer will benefit from terms (e.g. prices) that are at least as favourable as those offered by the seller to any other buyer.

There are two main types of MFC: Wholesale MFC (or merchant model of MFC) denotes the situation when the terms relate to the wholesale part of the value chain, for instance the agreement governs the price at which a supplier will sell to an online distribution platform. The upstream supplier offers the product to a retailer at wholesale terms and

1711 See, for instance Article 102(c) TFEU. See, Autorité de la Concurrence & Bundeskartellamt, Competition Law and Big Data (May 10th, 2016), 21-22, noting that although the application of EU competition law to these practices may be debated, in Germany, the Federal Supreme Court found that the national provision against the abuse of a dominant position can include a consumer protection dimension as regards price discrimination, see German Federal Supreme Court (BGH), „Entega II“, KZR 5/10, judgment of 07.12.2010.

1712 Commission Decision COMP/C.1/36.915, *Deutsche Post AG*, [2001] OJ L331/40 (not appealed), para 133.

the retailer sets the retail price to consumers. An example of merchant MFC is, for instance, an agreement between a hotel and some online travel agencies (OTAs) through which the hotel guarantee the OTAs that they will benefit from the best room prices among those offered to all OTAs. As the parties discipline the price of their own transaction and the retailer keeps his freedom to set the retail price, these types of MFC may not be considered as *prima facie* problematic.

Retail MFC relate to the terms at the retail level, the supplier committing to the distribution platform to charge a retail price for its product(s) on this platform that are at least as low as the prices it charges on rival platforms. In the 'Agency' Retail MFC model, the upstream supplier sets the final retail price and splits profits with the retailers downstream, by paying them directly for their services. This has been the standard business model for online retail platforms, such as eBay or Amazon marketplace. The use of the term 'agency' does not indicate that the agreements constitute genuine commercial agency agreements, in the sense of the 2010 vertical restraints guidelines or the CJEU's case law on commercial agency, as the retail platforms do not always fulfil the criteria of the genuine commercial agency, but highlight simply the fact that the supplier sets the final price at the retail level. One may characterise them as shopping malls or even providers of an important input to the upstream suppliers, 'access to customers and sales logistics services'¹⁷¹³ but this characterization should not substitute for a careful analysis of the various aspects of the relationship and the allocation of costs, as one should do for the implementation of the conditions of the genuine commercial agency agreements' immunity to Article 101(1) TFEU. In contrast to wholesale MFCs, in retail MFCs the parties do not agree on a pricing obligation that concerns their own transaction but aim to discipline the price charged by the seller with a third party (the customers).

Depending on the factual context, retail MFC may have pro-competitive justifications. First, the use of a MFC may provide a platform the possibility to address a free rider problem, both at the wholesale and the retail levels, since competing online platforms, brick and mortar stores, or even the supplier through a direct sale on his own website may free-ride on a platform's investment in promotion and demand-enhancing features. This problem may be exacerbated in multi-sided platforms, which typically maximise their profits by charging different prices at each side of the market: a 0 price for the consumers, while they impose a commission/fee on the suppliers' side of the market. For instance, hotel may free-ride on an online travel agent (OTA) platform by using the platform to allow the customer to find the hotel, but then charge lower rates, if the customer completes the reservation at its own website, thus enabling the hotel to avoid paying the commission it would have owed to the platform, had the customer completed his reservation at the OTA platform.¹⁷¹⁴ Second, the use of MFC may protect the interests of a buyer who needs to make relationship-specific investments, by providing him the assurance that the seller will not provide the product to competing buyers

1713 A Fletcher and M Hviid, 'Retail Price MFNs: Are they RPM 'at its worst?' (April 7, 2014), available at competitionpolicy.ac.uk/documents/8158338/8199490/CCP+Working+Paper+14-5.pdf/0ec21eee-12ca-4bc8-b3ea-d5076ab264af, 7.

1714 F E González-Díaz and M Bennett, 'The law and economics of most-favoured nation clauses' [2015] 1 Competition Law and Policy Debate (August 2015) 26, 34.

at a lower price.¹⁷¹⁵ This preserves the incentives of the buyer to invest in quality and reputation. Such clauses also reduce transaction costs, by avoiding the re-negotiation of prices, as the buyer will benefit from the price reductions granted to competitors automatically.¹⁷¹⁶ More generally, MFCs reduce the likelihood of contractual negotiation delays, as the parties are discouraged to delay in the expectation of a better offer.¹⁷¹⁷

A retail MFC may produce various anti-competitive effects. They can restrict entry at the retailer level by making it harder for new platforms, in particular those pursuing low-end business models, to attract suppliers, even if they lower their commissions/platform fees.¹⁷¹⁸ They help protecting intermediaries from direct selling by manufacturers or rival platforms, thus potentially leading to higher prices for consumers, if the competitive pressure is higher downstream than upstream.¹⁷¹⁹ This, in turn may, however, raise, under certain circumstances market-entry incentives.¹⁷²⁰ They act to soften competition between retailers and online platforms increasing the fees/commissions paid by the suppliers, these costs being ultimately passed on to consumers who finish by paying higher prices. They may be used as a means to achieve downstream collusion, as they reduce the incentives of retailers to deviate from a collusion on commissions/platform fees and they eliminate price competition at the retail level, as they remove any incentive for the retailer to undercut its rivals. But they can also facilitate collusion between suppliers upstream, as the reduction of price deviations across platforms make it easier to detect deviations from the collusive price. Finally, where only some platform providers use the agency model, a MFC leads to retail prices that resemble the outcome under industry-wide (collective) RPM.¹⁷²¹ The extent of retail competition on parameters not covered by MFCs, such as customer service and other quality-based competition, should also be relevant in the assessment of this impact.¹⁷²² The existence of cumulative effects, with a widespread use of MFN clauses in an industry, covering a substantial part of a market also raises important concerns¹⁷²³.

With regard to the effects of retail price MFC, one may distinguish between wide-MFC and narrow-MFC. In wide-MFC the price-setting supplier commits to charge the same price across all platforms and thus not to sell at a lower retail price anywhere else than it does through the retailer to which he conceded the retail price MFC. Narrow-MFC only require a supplier to charge the same price to consumers as it offers through a specific named retail platform. Naturally, the effect of wide-MFN is that the supplier needs to

1715 *ibid.*

1716 *ibid.*, 35–36.

1717 J Baker and J Chevalier, 'The competitive consequences of most-favored-nation provisions' [2013] 27 Antitrust 20.

1718 A Boik and K S Corts, 'The effects of platform MFNs on competition and entry' (2013), available at editorialexpress.com/cgi-bin/conference/download.cgi?db_name=RES2015&paper_id=41.

1719 Ø Foros, Øystein, H J Kind and G Shaffer, 'Turning the Page on Business Formats for Digital Platforms: Does Apple's Agency Model Soften Competition?' (August 29, 2013) CESifo Working Paper Series No. 4362.

1720 J P Johnson, 'The Agency Model and MFN Clauses' (January 10, 2014). Available at SSRN: ssrn.com/abstract=2217849.

1721 Ø Foros, Øystein, H J Kind and G. Shaffer, 'Turning the Page on Business Formats for Digital Platforms: Does Apple's Agency Model Soften Competition?' (August 29, 2013) CESifo Working Paper Series No. 4362.

1722 OXERA, Most-favoured-nation clauses: falling out of favour? (November 2014).

1723 S Salop and F Scott Morton, 'Developing an administrable MFN enforcement policy' [2013] 27 Antitrust 15.

control the retail price of its product everywhere it is sold.¹⁷²⁴ From this perspective, wide-MFN have been compared to RPM clauses, in view of the horizontal element of RPM, whereby each upstream firm sets identical retail prices across all of its downstream retailers.¹⁷²⁵ Those adhering to the RPM analogy conclude that retail price wide-MFC should not be treated less harshly than RPM, which implies that in the EU these should be considered as a by object restriction of competition and possibly a hardcore restriction under the Block Exemption Regulation.¹⁷²⁶ Some argue that the harm arising from retail wide-MFC can go beyond the harm that arises from traditional RPM, as the on-line retailer is controlling the minimum price that is being set in the market and can manipulate that price by increasing its commission, which is not possible under classic RPM.¹⁷²⁷ Others observe that MFCs are unlikely to harm competition where the level of concentration in both markets is low and the parties to an MFC lack market power.¹⁷²⁸

Competition authorities in Europe have dealt with a number of MFC cases, both wholesale and retail, the last few years. The use of 'wide' MFN clauses by intermediaries (ie price comparison websites or booking platforms) has been at the focus of many competition authorities' investigations. Most usually, the retailers force suppliers to implement MFC clauses in order to induce consumers' single-homing (ie, preventing them from consulting other platforms) thus being able to exercise market power even without being dominant (each platform becoming an unavoidable trading partner).

In 2002, the European Commission launched an investigation for a number of MFC clauses included in the contracts of eight major Hollywood studios ('the Majors') with Pay-TV providers. The contracts included 'output deals' between the 'Majors' and the European pay-TV broadcasters that bought the broadcasting rights, the studios agreeing to sell to broadcasters their entire film production for a given period of years. The MFC gave the studios the right to enjoy the most favourable terms agreed between a pay-TV company and any one of them. The Commission found that the cumulative effect of the clauses is an alignment of the prices paid to the Majors, as any increase agreed with a Major triggered a right to parallel increases in the prices of the other studio (cumulative collusive effect). The Commission closed the investigation after a number of majors accepted to withdraw the MFC clauses from the contracts¹⁷²⁹.

MFC were also examined in the more recent *e-books* investigation, following the switch from five main publishers from a wholesale model to an agency model for the sale of e-books in the United States, but also UK, France and Germany, each publisher concluding an agreement with Apple according to which the publishers determined the retail price

1724 A Fletcher and M Hviid, 'Retail Price MFNs: Are they RPM 'at its worst'', (April 7, 2014), available at competitionpolicy.ac.uk/documents/8158338/8199490/CCP+Working+Paper+14-5.pdf/0ec21eee-12ca-4bc8-b3ea-d5076ab264af, 6.

1725 *ibid*, 16–17.

1726 *ibid*, 32

1727 OECD, Vertical Restraints for Online Sales, DAF/COMP(2013)13.

1728 S Salop and F Scott Morton, 'Developing an administrable MFN enforcement policy' [2013] 27 Antitrust, 15; G Gürkaynak, A Güner, S Diniz and J Filson, 'Most-favored-nation clauses in commercial contracts: legal and economic analysis and proposal for a guideline' [2015] European Journal of Law & Economics 1.

1729 Pay Television Film Output Agreements (Case No. COMP/38427) EC Press Release, IP/04/1314 (October 26, 2004).

of the e-books it sold. These agreements with Apple formed part of a joint effort by the publishers to force Amazon to raise retail prices, which were set at 9.99 USD. In particular, the Commission was concerned that the joint switch to the agency contracts may have been coordinated between the publishers and Apple, as part of a common strategy aimed at raising retail prices for e-books or preventing the introduction of lower retail prices for e-books on a global scale. Indeed, the five publishers proposed to Apple an agency model for the sale of e-books and asked Apple to propose retail prices. The Commission was also concerned by the fact that these contracts contained the same key terms for retail prices – including an MFC clause, maximum retail price grids and the same 30% commission payable to Apple. The retail price MFC clause provided that, in the event another retailer were to offer a lower price for a particular e-book, including in situations where that retailer was operating under a wholesale model and thus was free to set retail prices, the publisher had to lower the retail price of that e-book in the iBookstore to match that other lower retail price. According to the Commission, the retail MFC clause ‘created a strong incentive for each of the Five Publishers to convert Amazon (and other major retailers [...]) to the agency model in order for each of the Five Publishers to be able to increase retail prices above those set by Amazon’. It also meant that, ‘had Amazon refused to convert to the agency model for UK titles, each of the Five Publishers would have had strong incentives to delay or withhold e-book new releases from Amazon’.¹⁷³⁰ After a preliminary assessment, the Commission found a horizontal/vertical concerted practice between the five publishers and Apple to raise retail prices in the EEA or to prevent the introduction of lower retail prices in the EEA, which it found had, by its very nature, the potential to restrict competition, that is was anticompetitive by object. The Commission accepted commitments by the parties, which placed a five-year ban on price MFCs, and required publishers to terminate their existing agency agreements with e-distributors and conclude new agreements that would allow agents to discount within their commissions.

A number of NCAs have also launched inquiries into MFCs in the online booking sector. Online Travel Agents (OTAs), such as Expedia, Opodo, Sabre, Booking.com and other members of the Priceline group, Voyages SNCF.com etc, have been a major e-commerce activity in recent years, as they are used by consumers in order to search, compare and book travelling and hotels. These online retail platforms also ensure the hotels’ visibility to consumers through the OTA’s webpage and advertising on search engines.

The UK OFT (the CMA’s predecessor) was the first authority to launch a formal investigation into vertical agreements concluded between hotels and OTAs in 2010 for breach of Chapter I CA 98 and Article 101 TFEU. Although not directly targeting MFC clauses, the OFT was concerned by the ‘discounting restrictions’ included in agreements between InterContinental Hotels Group and Hotel Inter-Continental London Limited (IHG) and each of Booking.com and Expedia, which prevented the online travel agents from discounting the price of room-only hotel accommodation. The OFT analysed the impact of retail rate MFCs clauses on the ability of OTA’s to offer discounts, these agreements requiring the

1730 E-BOOKS (Case No. COMP/39.847) (July 25, 2013), available at ec.europa.eu/competition/antitrust/cases/dec_docs/39847/39847_27536_4.pdf.

hotels to provide an OTA with access to a room reservation at a booking rate no higher than the lowest booking rate of any other online distributor (wide-MFC). Taking into account the efficiencies argued by the parties, the OFT accepted formal commitments from IHG, Booking.com and Expedia in January 2014¹⁷³¹, according to which the OTAs and the hotels would be free to offer reductions off headline room rates but these discounts would only be offered to members of ‘closed groups’ of consumers (‘club members’, membership being contingent on opting in and providing some personal details) and only applied when a customer had made a previous non-refundable booking with that OTA. OTAs would be able to publicize to non-club members the availability, but not the level, of discounts for IHG hotel rooms. Any discounts offered by OTAs were to be funded from their commission revenues or margin. The hotels would also be free to offer reductions off their headline room rates. The parties took also the commitment to amend, not include or remove any contractual provisions, including MFCs, that could reduce the freedom of the hotels to offer discounts.

The OFT’s decision was quashed by the CAT, as a result of a challenge from Skyscanner, a meta price comparison website, merely for the part of the decision that was limiting the disclosure of the level of discounts to members of the ‘closed group’, which affected the business model of Skyscanner.¹⁷³² The CAT remitted the case back to the CMA for reconsideration and the CMA decided to close the investigation into discounting restrictions on administrative priority grounds in September 2015, in view of the Europe-wide changes introduced by Booking.com and Expedia in their contracts in Europe with hotels, which removed certain ‘rate parity’ or ‘most-favoured-nation’ restrictions that prevent hotels from offering cheaper room rates on competing online travel agents’ sites than they offer on Booking.com or Expedia. The new arrangements allow hotels across Europe to offer cheaper rates than on Booking.com or Expedia through other online travel agents, offline, and to certain groups of customers. However, they continue in relation to prices offered on hotels’ own websites and certain other direct sales channels.¹⁷³³

In Germany, there have been independent court proceedings as well as action by the German Competition Authority (Bundeskartellamt) on the same issue. In interim proceedings, in 2012, the Düsseldorf Court of Appeal prohibited an online hotel booking platform, the Hotel Reservation Service (HRS), from implementing MFCs included in its contracts with hotel partners, as these clauses restricted the hotel’s freedom to set prices independently and deprived customers of the opportunity to obtain a better offer for the same hotel room on other sales channels (*wide*-MFC clause). By a decision in 2013, the Bundeskartellamt prohibited HRS’s MFCs ordering it to remove these clauses from all contracts, considering that these clauses restricted competition between OTAs,

1731 OFT 1514dec, Hotel Online Booking: Decision to accept commitments to remove certain discounting restrictions for Online Travel Agents, (January 31, 2014), available at webarchive.nationalarchives.gov.uk/20140402142426/http://www.of.gov.uk/shared_of/ca-and-cartels/oft1514dec.pdf.

1732 Skyscanner Limited v CMA [2014] CAT 16.

1733 CMA, Press Release, CMA closes hotel online booking investigation (September 16, 2015), available at www.gov.uk/government/news/cma-closes-hotel-online-booking-investigation.

prevented new platforms from offering hotel rooms at lower prices and restricted the opportunities open to hotels to use different sales channels in order to make offers at different prices and other conditions.¹⁷³⁴ The Bundeskartellamt did not distinguish between wide and narrow MFCs. It also left open the possibility of HRS's contracts to be exempted under the VBER, as HRS held a market share above the 30% threshold. The Düsseldorf Court of Appeal confirmed the decision of the Bundeskartellamt in January 2015 finding that HRS's 'best price' clauses restricted competition to such a degree that they cannot be exempted under the TFEU Block Exemption Regulation or as an individual exemption.¹⁷³⁵ The Court rejected HRS's claim that the MFC created incentives for ongoing investment in the quality of the downstream online platform, because of free-rider problems reducing sales downstream, as it found that OTAs had in any case considerable incentives to invest in the quality of their portal, as the more users a platform attracts on both the supply and the demand side the more appealing it becomes for new users. Most recently, however, the Düsseldorf Court of Appeal annulled another decision of the Bundeskartellamt that prohibited Booking.com to operate *narrow* MFN clauses with regard to hotels located in Germany¹⁷³⁶. It found the clauses to be necessary to ensure a "fair and balanced contractual exchange of services between the portal and the hotels", and therefore not amounting to a restriction of competition. The same outcome was reached in May 2019 in Sweden, where an appeal court reversed the first instance court's ruling in a case involving Booking and the Swedish hotel association Visita, finding that that the appellee had presented insufficient evidence that *narrow* MFNs had an anticompetitive effect¹⁷³⁷.

In the context of the European Competition Network (ECN), the European Commission coordinated the investigations launched by the French, Italian and Swedish competition authorities against HRS, which were jointly appointed by the ECN to lead the European national proceedings regarding MFCs.¹⁷³⁸ Booking.com offered to these three competition authorities a package of commitments for the entire European Economic Area. Following Booking.com's commitment, Expedia also announced that it would waive its rate availability and MFC clauses in contracts with hotels in Europe for the next five years.

1734 Bundeskartellamt, Press Release, Online hotel portal HRS's 'best price' clause violates competition law – Proceedings also initiated against other hotel portals (December 20, 2013), available at www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2013/20_12_2013_HRS.html;jsessionid=0B66DDE97FA76D70366F9F094B387A6F.1_cid387?nn=3591568.

1735 VI-Kart 1/14 (V), Higher Regional Court of Düsseldorf (January 9, 2015); Bundeskartellamt, Press Release, HRS's 'best price' clauses violate German and European competition law – Düsseldorf Higher Regional Court confirms Bundeskartellamt's prohibition decision (January 9, 2015), available at www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2015/09_01_2015_hrs.html.

1736 Bundeskartellamt, Press Release Nr. 18/2019, Hotelbuchungen im Internet: "Enge" Bestpreisklauseln sind zulässig 04.06.2019, http://www.olg-duesseldorf.nrw.de/behoerde/presse/Presse_aktuell/20190604_PM_booking/index.php

1737 Swedish Patent and Market Court of Appeal's ruling 9 May 2019, case no. PMT 7779-18. For an analysis, see <http://anti-trust-alliance.org/the-swedish-patent-and-market-court-of-appeal-not-established-that-narrow-parity-clauses-restrict-competition/>

1738 European Commission, Press Release, Antitrust: Commission announces the launch of market tests in investigations in the online hotel booking sector by the French, Swedish and Italian competition authorities available at europa.eu/rapid/press-release_IP-14-2661_en.htm (December 15, 2014).

The commitments remove the MFC clauses from its contracts with hotels that concern parity with third party booking services, as well as those requiring parity with hotel's direct sales. Hotels may consequently freely apply lower prices and/or better commercial conditions on platforms in competition with Booking.com and allocate them larger quotas of rooms. They may also offer prices at a lower rate than those displayed on the Booking.com website via their offline sales channels (on-site bookings, by telephone, fax, email, instant messaging, physical sales). Lower discounts than those displayed on the Booking.com website may also be offered to customers who are members of loyalty programmes, thus substantially increasing the hotels' margin for maneuver. These commitments are undertaken for 5 years, coming into force from 1 July 2015. According to the French Competition Authority, these commitments should 'provide an impetus to competition between Booking.com and competing OTAs, allowing the commissions levied on the hotels to fall', they also provide hotels 'some countervailing power by considerably improving their commercial and pricing freedom', while maintaining 'at the same time the OTAs' [...] economic model which provides consumers with powerful research and comparison services'.¹⁷³⁹ The French Competition Authority's decision has been appealed to the Paris Court of Appeal. Investigations against Booking.com's and Expedia's MFC clauses are however still ongoing in few EEA Member States, notably in Germany. One may also note that France has also taken legislative action in this area by enacting a law on August, 6th, 2015, which declares illegal and unenforceable price parity clauses regarding contracts between hotels and OTAs, irrespective of the channel concerned, offline or online.¹⁷⁴⁰

Investigations on MFCs have also been launched against Amazon's price parity policy applicable to third party sellers trading on Amazon's 'Marketplace' retail platform, both in the UK and Germany. The price parity clauses prohibited sellers from selling products which they offer on Amazon more cheaply on any other online sales channel. Both the German Bundeskartellamt and the OFT found that these clauses rendered difficult for other internet marketplaces to compete with Amazon and for new platforms entering the market to reach a large number of customers. The MFCs were also found to soften competition between Amazon and other internet marketplace operators, leading to increased seller fees and generally higher retail prices with insufficient countervailing ben-

1739 Autorité de la Concurrence, Pres Release, Online hotel booking sector (April 21, 2015), available at www.autoritedela-concurrence.fr/user/standard.php?id_rub=607&id_article=2535, Decision 15-D-06 *concerning practices implemented in the online hotel booking sector*, available at < www.autoritedelaconcurrence.fr/user/avisdec.php?numero=15-D-06; Italian Competition Authority, Press Release, (April 21, 2015) available at www.agcm.it/en/newsroom/press-releases/2207-commitments-offered-by-bookingcom-closed-the-investigation-in-italy-france-and-sweden.html ; Swedish Competition Authority, Press Release, (April 21, 2015), available at www.konkurrensverket.se/en/news/commitments-given-by-booking-com-benefit-consumers/ (regarding Booking.com's commitments). See also Swedish Competition Authority, Press Release (October 5th, 2015), available at www.konkurrensverket.se/en/news/investigation-of-the-online-travel-agency-expedia-closed/ (regarding Expedia's commitments). Other NCAs published press releases announcing their approval of the proposed pan-European solution, refraining from launching their own investigation (Netherlands, Denmark, Greece, Ireland, Austria etc).

1740 Article 133 of Loi No, 2015-990 pour la croissance, l'activité et l'égalité des chances économiques, August 6th, 2015, available (in French) at www.legifrance.gouv.fr/eli/loi/2015/8/6/2015-990/jo/texte.

efits, to the detriment of consumers. The German Bundeskartellamt considered that the price parity clauses were a horizontal, price-related agreement between competitors as Amazon and the third party sellers using its Marketplace compete to sell their products to the same group of customers on the same level of trade. This was found to affect the pricing policy of the third party sellers on the Marketplace as well as on their own homepages (wide-retail MFC). Amazon abandoned the price parity clauses for its Marketplace across the EU in 2013, and changed its general terms and conditions for some of the sellers. In order to convince the UK and German competition authorities that contractual conditions would change for all sellers, and that Amazon would not revert to its previous business practices, Amazon took several further measures to reassure the authorities to close formally their respective cases.

The European Commission also opened an investigation against Amazon's price parity policies in the distribution of e-books.¹⁷⁴¹ The Commission was concerned about clauses included in Amazon's contracts with publishers, requiring the publishers to inform Amazon about more favourable or alternative terms offered to Amazon's competitors and/or offer Amazon similar terms and conditions than to its competitors, or through other means ensure that Amazon is offered terms at least as good as those for its competitors. These clauses may shield Amazon from competition from other e-book distributors, limiting intra-brand competition to the detriment of consumers. This is not the first time that the Commission dealt with MFC clauses in e-books, as it had the chance to examine conduct involving Apple's agreements with five major publishers in the *e-books* investigation. The final commitments included, as regards the four publishers, a price MFC ban and, as regards Apple, a retail price MFC ban.¹⁷⁴²

One should finally note the CMA's recent report on Private Motor Insurance, the final report being published in September 2014, which summarises well the state of the law in the UK.¹⁷⁴³ The report addresses the lawfulness of MFCs included in agreements between private motor insurance providers and care insurance price comparison websites (PCW), whereby they agree that the private insurance policy offered by the insurer through the PCW will not be sold at a lower price on other PCWs. PCWs are not wholesalers of insurance but intermediaries, 'matching' two sets of customers (PMI providers and retail consumers), aiming to attract both sides to their platforms. The retail price to consumers is set by the PMI providers (agency model of retail MFC). The CMA further observed that competition is occurring at both sides of the platform and that PCWs appeared to enjoy a significant degree of market power against PMI providers as their consumers mostly practices 'single-homing', that is a consumer uses a single PCW to compare policy prices and does not compare prices across several PCWs for a given transaction. It was noted in the final report that PCWs have become an increasingly important sales channel for PMI, accounting for 55–65% of all new business sales. The CMA distinguished between narrow MFC, where an insurer and a PCW agreed that the

1741 European Commission, Press Release, Antitrust: Commission opens formal investigation into Amazon's e-book distribution arrangements (June 11, 2015), available at europa.eu/rapid/press-release_IP-15-5166_en.htm.

1742 E-BOOKS (Case COMP/39.847) Commission Decision [2013] OJ C 378/25.

1743 More information on the investigation, www.gov.uk/cma-cases/private-motor-insurance-market-investigation.

insurer would not offer the same policy at a lower price on its own website as it offered through the PWC, which the CMA considered were unlikely to give rise to anti-competitive effects and which it found necessary to ensure the viability of PCW's by preventing free riding on PCW's retail services and protecting their reputation as a low-cost supplier, and wide-MFC, which are likely to have an anti-competitive effect both in the PMI and the PCW markets. Indeed, a wide-MFC closes any possibility the customer has to purchase the same PMI policy more cheaply from another PMI provider. The CMA considered that wide-MFCs softened competition between PCWs, reduce the incentives for incumbents and entrants to innovate and lead to an increase of commission fees and policy premiums.¹⁷⁴⁴ The CMA also concluded that wide-MFCs were not necessary, as in their absence, there was little danger of free-riding from other PCWs. The CMA prohibited wide-MFCs for imposing a significant detriment to consumers, as well as any other equivalent behaviours, for example threatening to delist a PMI provider if it offered PMI policies more cheaply on other PCW.

Brazil: There is one case worth mentioning that involves APPAs in Brazil. The proceedings initiated after a complaint filed by the Brazil Hotel Operators Forum ("FOHB"), arguing that the online travel agencies (OTAs) were perpetrating anticompetitive conducts in the market for online booking services for hotels, due to the imposition of MFN clauses (also known as wide price parity clauses) to hotels that wished to be listed on the Respondents' websites.

Brazil's competition authority, CADE, considered that the imposition of price parity clauses was sufficient to reduce the incentives for competition between OTAs and increase barriers to entry. CADE obtained commitments¹⁷⁴⁵ from Decolar.com, Expedia.com and Booking.com, the three largest OTAs in Brazil, settled with CADE.¹⁷⁴⁶ According to the commitments, the OTAs agreed to stop using wide price parity clauses, refraining from imposing to their suppliers of accommodation obligations regarding price parity to other OTAs and to off-line booking channels. However, CADE accepted narrow price parity clauses, allowing harmonisation of prices in limited situations: (i) in relation to general offers in the hotel website; (ii) in relation to direct hotel offers in meta-search websites and (iii) offline reservations that are publicised online. CADE also recognised that OTAs are a new digital phenomenon and, therefore, the authority still had limited experience. In this context, CADE's prohibition of wide parity clauses was limited to a period of three years, during which the authority will monitor the players' practices and the market's technological development.

India: While there isn't much litigation on APPA in India, the CCI's post-investigation order in *M/s Jasper Infotech Private Limited (Snapdeal) Vs. M/s Kaff Appliances (India) Pvt. Ltd.*, delivered in January 2019¹⁷⁴⁷ contains a statement that encapsulates the CCI's position on the issue. The CCI observes: "Almost all the evolved competition authorities have

1744 CMA, Final Report, Private Motor Insurance Market Investigation 9 September 24, 2014), available at assets.digital.cabinet-office.gov.uk/media/5421c2ade5274a1314000001/Final_report.pdf, Sections 8 and 12.

1745 Cease and Desist Agreements, provided for by Law 12,529/2011, art. 85

1746 Settlement Agreements on Proceedings 08700.005679/2016-13.

1747 <https://www.cci.gov.in/sites/default/files/61-of-2014.pdf>

considered restraints imposed by or on the online platforms as vertical restraints e.g. cases pertaining to Most Favored Nation (MFN) clauses, Across Price Parity Agreements (APPA), non-price restrictive clauses etc.”¹⁷⁴⁸ In this case the platform owner had alleged RPM (dealt under anti-competitive agreements) on part of a supplier on its platform.

The Commission further observes that “[i]n India, however, the alleged RPM is assessed under rule of reason analysis i.e. only if such conduct/agreement/understanding causes or is likely to cause an AAEC [appreciable adverse effect on competition], that the same falls foul of Section 3(4)(e) read with Section 3(1) of the Act. This is in sync with the existing economic literature which suggests that vertical agreements deserve a rule of reason analysis, simply owing to the fact that the vertical agreements are concluded between entities operating at different levels in the production chain who generally produce complementary products or services and are not as such placed in a competitive relationship. To safeguard their respective interests, such entities necessarily enter into number of commercial agreements, many of which may not necessarily be anti-competitive and rather may be efficiency enhancing with sound economic justifications. Since these parties are not producing substitutes as such and thus not competing as such, their incentives are generally aligned to that of end consumer. In such a scenario, it becomes imperative that the competition authorities which are mandated to proscribe anti-competitive agreements, do not end up restraining pro-competitive commercial agreements/arrangements.”¹⁷⁴⁹

The CCI continued explaining that in order to establish a contravention under Section 3(4) read with Section 3(1) of the Act, two conditions need to be fulfilled – firstly, that the agreement/arrangement/ understanding ought to exist and, secondly, that such agreement/arrangement/ understanding has caused or has the potential to cause AAEC”,¹⁷⁵⁰.

In the end, the CCI rejected the claim as there was insufficient evidence on the record of price restriction or minimum RPM. Furthermore, the Commission also found that there was sufficient intra-brand competition, and hence no AAEC.

6.3.4. Online RPM or RPM facilitating conduct

Competition authorities are increasingly concerned by RPM in online markets (iRPM), in particular in view of the interaction between RPM and parity clauses (APPAs), as well as conduct facilitating RPM, such as internet minimum advertised price restraints (iMAP) and dual pricing.¹⁷⁵¹ There are various ways in which vertical restraints may be used to facilitate RPM conduct. The EU Vertical restraints guidelines list vertical restraints that

¹⁷⁴⁸ P17, Ibid

¹⁷⁴⁹ P 18-19, ibid

¹⁷⁵⁰ P 20, ibid

¹⁷⁵¹ Recently, the European Commission has announced the launch of an investigation of a potential restriction on the ability of online retailers to set their own prices for widely used consumer electronics products such as household appliances, notebooks and hi-fi products accompanied by the use of pricing software that automatically adapts retail prices to those of leading competitors. See European Commission, Press Release IP/17/201 (February 2017), available at europa.eu/rapid/press-release_IP-17-201_en.htm.

may be used to indirectly facilitate RPM: fixing the retail margin, fixing the maximum discount a retailer can offer from a prescribed price level, making the grant of rebates or reimbursement of promotional costs conditional on the maintenance of a particular price level, and linking the prescribed resale price to competitors' resale prices (retail APPAs/MFCs).¹⁷⁵² In addition, 'threats, intimidation, warning, penalties, delays or suspension of deliveries if a given price level is not observed' can also induce a retailer to maintain a particular resale price.¹⁷⁵³ Such indirect price fixing can be made more effective in facilitating RPM if there are also monitoring mechanisms in place that help to identify price-cutting distributors. Measures that reduce a retailer's incentives to discount prices, such as the supplier printing a recommended resale price on a product or the supplier obliging the buyer to apply an MFC clause can also enhance the effectiveness of indirect uses of vertical restraints as a way of facilitating RPM.¹⁷⁵⁴ According to the Commission, 'the same indirect means and the same "supportive" measures can be used to make maximum or recommended prices work as RPM'.¹⁷⁵⁵ The horizontal effect of these facilitating practices may be more pronounced in an online environment, because of the higher transparency and the information dissemination in the online economy. However, one needs to be cautious and not rush in conclusions that a facilitating practice constitutes an RPM. As the Commission notes, 'the use of a particular supportive measure or the provision of a list of recommended prices or maximum prices by the supplier to the buyer is not considered in itself as leading to RPM'.¹⁷⁵⁶

The consumer harm narratives for online RPM and online RPM facilitating conduct are similar than those for traditional RPM: they limit the retailer's ability to set retail prices, thus reducing the intensity of intra-brand competition, they facilitate collusion, or exclude rivals at the supplier or retail level, but also dampen interbrand competition. For instance, a iMAP may reduce intra-brand competition between online and offline sellers in circumstances where an online retailer cannot engage in customer negotiations as readily as offline retailers¹⁷⁵⁷. Exclusion at the supplier level may arise if the conduct guarantees a retail margin that makes a retailer less willing to stock a rival supplier's product. Foreclosure of downstream distribution channels in this manner may reduce inter-brand competition between suppliers. Exclusion at the retail level may also occur if a supplier is induced to adopt an indirect price maintenance scheme that reduces discounting retailers' ability to compete. Offline retailers may have an incentive to try to induce suppliers to implement MAP policies, refuse to supply or otherwise discriminate against discounting online retailers.¹⁷⁵⁸ At the same time, the Internet 'greatly lowers the cost of disseminating 'catalogs' to those consumers who are likely to buy particular products', thus may be providing more incentives for manufacturers, but also compet-

1752 EU Vertical Restraints Guidelines, para 48.

1753 *ibid.*

1754 EU Vertical Restraints Guidelines, para. 48.

1755 *ibid.*

1756 *ibid.*

1757 OECD, Vertical Restraints for On-line Sales, DAF/COMP(2013)13.

1758 OECD, Vertical Restraints for On-line Sales, DAF/COMP(2013)13.

ing retailers, to initiate RPMs.¹⁷⁵⁹ Furthermore, ‘the ease of price comparison on the Internet increases the free rider problem, making RPM a desirable tool for some manufacturers seeking to control their brand image and protect their distribution networks’, but it also ‘makes it easier to enforce retail cartels because it makes price-cutting more obvious’ and increases the “risk of horizontal effects from RPM when a manufacturer vertically integrates online, leading to its setting the price for its competitors’.¹⁷⁶⁰

The OFT (CMA’s predecessor) examined iMAP policies in the mobility scooters case where it found that a manufacturer and several retailers of Roma-branded mobility scooters had infringed Chapter I CA 98 by entering into vertical agreements prohibiting some retailers from advertising prices online for certain mobility scooters and prohibiting online sales by certain retailers.¹⁷⁶¹ In a separate investigation in the same sector, the OFT found that a manufacturer and several retailers of certain Pride-branded mobility scooters had infringed the CA 98 by entering into vertical agreements that prohibited the advertising of prices below the Recommended Retail Price (RRP) set by Pride.¹⁷⁶² The OFT considered that the use of iMAPs can soften intra-brand competition, reduce discounting and raise prices to consumers. In addition, the use of iMAPs may reduce price transparency and significantly increased consumers’ search costs. This was of particular concern in this case as consumers of mobility scooters typically incur high search costs due to their particular circumstances and are therefore less able to shop around by physically visiting various retail premises. The OFT was particularly concerned that a prohibition on price advertising and a prohibition on online sales, in the context of a selective distribution system (where intra-brand competition was already weak) undermined the benefits brought about by the internet. According to the OFT, ‘having the freedom to advertise retail prices on the internet can intensify price competition between retailers and enable consumers to obtain better value for money’. The prohibitions were also liable to disproportionately impact on potentially more vulnerable consumers that are often first-time buyers and place them at a particular disadvantage. The OFT also considered the differential between Pride’s RRP and retailers’ actual selling prices., in particular where they did not comply with Pride’s requests and/or instructions and/or did not fully respect the agreement, and found that the online prices advertised for certain Pride mobility scooters were significantly below Pride’s RRP.

In 2016, the CMA found that 2 businesses, one supplying commercial catering equipment and the other supplying bathroom fittings, had broken competition law by engag-

1759 J A Chevalier, ‘Free Rider Issues and Internet Retailing, Written Statement to the Federal Trade Commission Public Workshop on Possible Anticompetitive Efforts to Restrict Competition on the Internet’ (Oct. 10, 2002), available at www.ftc.gov/opp/ecommerce/anticompetitive/panel/chevalier.pdf.

1760 Note, ‘Leegin’s Unexplored “Change in Circumstance”: The Internet and Resale Price Maintenance’ (2008) 121 Harvard Law Review 1600, 1612.

1761 OFT, Roma-branded mobility scooters: prohibitions on online sales and online price advertising, CE/9578-12, (August 5th, 2013), available at assets.digital.cabinet-office.gov.uk/media/53330299e5274a571e000005/a_non-confidential_version_of_that_Decision.pdf.

1762 OFT, Mobilityscooters supplied by Pride Mobility Products Limited: prohibition on online advertising of prices below Pride’s RRP, CE/9578-12, (March 27, 2014), available at assets.digital.cabinet-office.gov.uk/media/54522051ed915d1380000007/Pride_Decision_Confidential_Version.pdf.

ing in resale price maintenance (RPM). In the *Commercial Catering Equipment* case, the supplier had imposed a 'minimum advertised price' (MAP) policy that restricted the price at which retailers could advertise the supplier's product online¹⁷⁶³. It seems that the MAP Policy was introduced in response to low prices by online resellers putting pressure on the prices and margins of the supplier's traditional resellers. The supplier enforced this MAP policy by threatening to charge dealers higher cost prices for products, or stopping supply altogether, if they advertised below the minimum price. These warnings of sanctions were credible, as the supplier did withhold or cease supply, both temporarily and permanently, to resellers that did not comply with the MAP Policy, henceforth effectively incentivizing the resellers to comply with the MAP Policy. The CMA noted that restrictions on advertising prices below a certain level have been found to lead to *de facto* RPM and constituted a restriction by object of competition law, falling under the prohibitions of both Chapter I CA98 and Art. 101(1) TFEU¹⁷⁶⁴. It also noted that agreements and/or concerted practices, which have as their object the restriction of competition, are very unlikely to benefit from individual exemption and did not explore any efficiency gains in the context of Art. 101(3) TFEU and the UK equivalent.

In the *Bathroom Fittings* case, the manufacturer had threatened retailers with penalties for not pricing at or above a 'recommended' online price as set out in 'online trading guidelines'¹⁷⁶⁵. Enforcement threats included charging retailers higher prices for products, withdrawing rights to use the supplier's images online or withholding supply of products. The CMA found in light of this legal and economic context that the Recommended Online Price was not simply a recommendation but fixed a minimum resale price in respect of online sales, and it formed part of an agreement qualified as an RPM, having as its object to prevent, restrict or distort competition and being, by its very nature, harmful to the proper functioning of normal competition¹⁷⁶⁶. Again, the CMA found that the agreement could not be exempted.

Dual pricing restrictions, that is when there are dissimilar supply conditions from a producer to on-line retailers compared to retailers using traditional channels of distribution, have also been the focus of several NCAs' investigations and proceedings in national courts, sometimes with conflicting approaches. Dual pricing restrictions may take various forms: one is to set higher wholesale prices for internet retailers, either directly or indirectly through reward/loyalty programmes; another one is to offer online customers warranties or a level of service different from what they would have otherwise obtained. According to the European Commission's vertical restraints guidelines, any obligation that dissuades distributors from using the Internet, such as the require-

1763 CMA Decision, Online resale price maintenance in the commercial refrigeration sector, Case CE/9856/14 (May 2016), available at <https://assets.publishing.service.gov.uk/media/575a8f5eed915d3d24000003/commercial-catering-equipment-non-confidential-decision.pdf>.

1764 Ibid., para. 6.42.5. & 6.44.

1765 CMA Decision, Online resale price maintenance in the bathroom fittings sector, Case CE/9857-14 (May 2016), available at <https://assets.publishing.service.gov.uk/media/573b150740f0b6155b00000a/bathroom-fittings-sector-non-conf-decision.pdf>.

1766 Ibid., para. 6.84.

ment that a distributor pays a higher purchase price for units sold on-line ('dual pricing'), is considered as a hardcore restriction under the VBER.¹⁷⁶⁷ However, according to the Commission, 'in some specific circumstances, such an agreement may fulfil the conditions of Article 101(3)', in particular 'where a manufacturer agrees such dual pricing with its distributors, because selling online leads to substantially higher costs for the manufacturer than offline sales'. For instance, this may be the case 'where offline sales include home installation by the distributor but online sales do not', as the latter may lead to more customer complaints and warranty claims for the manufacturer.¹⁷⁶⁸

In 2009, the Dutch Authority for Consumers and Markets (ACM) decided that dual pricing should not be prohibited in the absence of a dominant position.¹⁷⁶⁹ Furthermore, Dutch courts have ruled that the Block Exemption Regulation covers the issuance of dissimilar supply conditions from a producer to on-line retailers compared to retailers using traditional channels of distribution, but have also noted that this approval is conditional to the existence of an added value differential between the two channels, in this case the value differential being the display of the products, the personal advice given by trained personnel, and the installation of the equipment.¹⁷⁷⁰ To the extent that the offline distribution channel yields greater value, the supplier has a proper incentive to apply better conditions to traditional shops so as to encourage sales through this channel and to employ dual pricing in order to increase the retail margin for brick and mortar stores.

The German competition authority took a more restrictive position to dual pricing.¹⁷⁷¹ In 2013, the BKartA initiated proceedings against Bosch after some dealers alleged that Bosch applied a rebate system which put dealers who sold household appliances in both physical and online stores (omni-channel retailing) at a disadvantage as an increase in turnover generated online led to a decrease in the total rebates received.¹⁷⁷² The rebate

1767 Vertical restraints guidelines, paras 52(d) and 64. This 'does not exclude the supplier agreeing with the buyer a fixed fee (that is, not a variable fee where the sum increases with the realised offline turnover as this would amount indirectly to dual pricing) to support the latter's offline or online sales'.

1768 EU Vertical Restraints Guidelines, para 64.

1769 See, Dutch Authority for Consumers and Markets (ACM), press release of 23 June 2009, available (in Dutch) at www.acm.nl/nl/publicaties/publicatie/5313/NMa-geen-mededingingsrechtelijk-onderzoek-internetverkoop/. See also the 2015 Guidelines adopted by the ACM, ACM's strategy and enforcement priorities with regard to vertical agreements, available at www.acm.nl/en/publications/publication/14226/ACMs-strategy-and-enforcement-priorities-with-regard-to-vertical-agreements/.

1770 Zutphen District Court, Preliminary motion ruling of 30 December 2005, GroenTrend & SchoutenKeukensv. AEP Home Products, Case 74100/KG ZA 05-309, LJN AU8878; later confirmed in the proceedings on the merits: Zutphen District Court, Ruling of 8 August 2007, Case 79005/HA ZA 06-716, LJN BB722. For an analysis, see G Oosterhuis and A Buyserd, The Netherlands, [2009] 5 European Competition Journal 908.

1771 See also the restrictive position of the German Bundeskartellamt (BKartA) concerning dual pricing practices in a document published in 2013 on 'Vertikale Beschränkungen in der Internet Ökonomie' (Vertical Restrictions in the Internet Economy), available (in German) at www.bundeskartellamt.de/SharedDocs/Publikation/DE/Diskussions_Hintergrundpapier/Bundeskartellamt%20-%20Vertikale%20Beschr%C3%A4nkungen%20in%20der%20Internet%C3%B6konomie.pdf?__blob=publicationFile&v=2.

1772 This was part of proceedings opened against three German companies employing dual pricing restrictions: Gardena (gardening tools), Dornbracht (sanitary ware) and Bosch Siemens Hausgeräte (household appliances).

system therefore created incentives for dealers to limit their online sales and as a result, competition through online sales was reduced. The BKartA considered the rebate system to be anticompetitive dual pricing, constituting a restriction of competition by object according to Article 101 TFEU and the equivalent provision in German competition law. It also found that dual pricing does not entail any efficiency benefits and that, in any case, there were less drastic ways of covering the higher costs of offline sales. Bosch informed the BKartA that it would put in place a new rebates system according to which similar rebates can be obtained for sales in offline shops and for online sales.

The French competition authority examined this issue in its Opinion No 12-A-20 of 18 September 2012 on e-commerce where it seems to accept that the existence of a difference in remuneration for the same brick & mortar distributor depending on whether the sale occurs in a physical store or online constitutes a hardcore restriction according to the VBER but may nevertheless be justified with respect to an individual exemption under Article 101(3) TFEU or the equivalent provision of national competition law.¹⁷⁷³ In particular, the French competition authority accepts that, when a distribution service can only be provided in store, it may be justifiable for its remuneration to be based on the turnover realised exclusively in the store(s). Yet, such restrictions may not unjustifiably reduce the competitive pressure exerted by on-line retailers on traditional retailers.

The OFT had also examined dual pricing clauses in its investigation in 2006 against the discount scheme offered by Yamaha.¹⁷⁷⁴ Yamaha offered discounts to distributors specifically rewarding face-to-face sales of high-end electronic pianos and keyboards, the level of the discounts depending on the ratio of face-to-face sales v distance sales (including Internet sales). The OFT found that the discount scheme restricted Internet sales and that it acted as a price stabilizing measure targeted at retail discounters. Yamaha took the decision to withdraw the scheme and the OFT closed the investigation.

The Commission's E-commerce final report, paragraph 35 explained that "dual pricing is often viewed by stakeholders as a potentially efficient tool to address free-riding. They argue that dual pricing may help to create a level playing field between online and offline sales, taking into consideration differences in the costs of investments. Comments in relation to dual pricing point to the need for a more flexible approach to performance-related wholesale pricing. A more flexible approach would allow for differentiation between sales channels, depending on the actual sales efforts, and would encourage hybrid retailers to support investments in more costly (typically offline), value added services".

Following in the footsteps of the E-commerce inquiry, the European Commission opened an investigation in February 2017 against Asus, Denon & Marantz, Philips and Pioneer for engaging in RPM on electronics products. In July of 2018, the Commission issued a deci-

1773 Autorité de la concurrence, Avis du 18 septembre 2012 relatif au fonctionnement concurrentiel du commerce électronique, summary (in English) available at www.autoritedelaconcurrence.fr/user/standard.php?id_rub=418&id_article=1969.

1774 OFT, Press Release 132/06, available at webarchive.nationalarchives.gov.uk/20081023141438/http://oft.gov.uk/news/press/2006/132-06.

sion finding an illegal RPM based on merely recommended retail prices, but enforced through algorithmic price monitoring and subsequent requests to increase prices¹⁷⁷⁵. The Commission imposed a total of €111 million in fines on those four undertakings. A few months later, the Commission imposed a fine of €40 million on clothing producer Guess for several vertical restraints, one of which concerning RPM¹⁷⁷⁶.

U.S. courts have not heard a dual pricing case. Plaintiffs generally have difficulty prevailing in cases challenging vertical restraints. Under the Sherman Act, they even have difficulty challenging resale price maintenance (RPM), although many states still prohibit the practice, viewing it as per se illegal.¹⁷⁷⁷ At the federal level, the U.S. Supreme Court in *Dr. Miles Med. Co. v. John D. Park & Sons Co.*,¹⁷⁷⁸ initially held the same view. After *Leegin* in 2007, however, all federal courts review RPM claims under the rule of reason.¹⁷⁷⁹

In terms of vertical restraints on the Internet, U.S. courts have decided a few internet minimum advertised price (IMAP) cases. The framework for finding liability in those cases depended on classifying the practice as RPM. While reserving the possibility of an appellate court constructing a different framework, the rule of reason probably will continue to govern IMAP claims.¹⁷⁸⁰ In addition to establishing that the IMAP at issue resembles RPM, a plaintiff must show that the IMAP produces anticompetitive effects.¹⁷⁸¹

Considering the elements in reverse order, an IMAP could prevent many transactions. Proving the fact would require proving a hypothetical, which could involve collecting significant data from the platform and perhaps third parties.¹⁷⁸²

Relating to whether IMAPs operate similar enough to RPM, district courts have filed conflicting views. The Western District of New York has held that they do not, stating that the freedom to sell at any price, notwithstanding a restraint on the minimum price that a dealer may advertise, distinguishes IMAPs from RPM.¹⁷⁸³ By contrast, the Eastern District of New York has viewed the two practices as conceptually similar, because both restrict the retail prices of Internet retailers, even if IMAPs purport to control only advertised prices.¹⁷⁸⁴

1775 See Summary of Commission Decision of 24 July 2018 relating to a proceeding under Article 101 of the Treaty on the Functioning of the European Union (Case AT.40465 — Asus (vertical restraints)), available at [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018XC0921\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018XC0921(01)&from=EN).

1776 See Press release IP/18/6844 (17 December 2019), available at https://europa.eu/rapid/press-release_IP-18-6844_en.htm

1777 Chris Sagers, *Coty, Amazon, and the Future of Vertical Restraints: Evolving Distribution Norms on Both Atlantic Shores*, p. 5, available at: <https://ssrn.com/abstract=3245418>.

1778 220 U.S. 373 (1911).

1779 *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007).

1780 Julie Beth Albert, *Adding Uncertainty to the Virtual Shopping Cart: Antitrust Regulation of Internet Minimum Advertised Price Policies*, 80(4) *Fordham L. Rev.* 1679, 1702-3 (2012), available at: <http://ir.lawnet.fordham.edu/flr/vol80/iss415>.

1781 See *ibid.* at 1703-4.

1782 *Ibid.* at 1711.

1783 *Ibid.* at 1712 (quoting *Campbell v. Austin Air Sys., Ltd.*, 423 F. Supp. 2d 61, 64-5 (W.D.N.Y. 2005)).

1784 *Ibid.* at 1712 (quoting *Worldhomecenter.com v. Kichler Co.*, No. 05-CV-3297, 2007 WL 936206, at *5 (E.D.N.Y. Mar. 28, 2007). See also *ibid.* at 1713 (citing *Worldhomecenter.com, Inc. v. Quoizel, Inc.*, No.651444/2010, slip op. at *6).

The issue of whether a contract exists can determine whether Section 1 or Section 2 of the Sherman Act applies. Absent a contract, a plaintiff must prove market power upstream, and perhaps downstream, under Section 2. The Colgate doctrine then could prevent liability, since a seller may choose retailers with which to deal after suggesting a minimum advertising price.¹⁷⁸⁵

Under a Section 1 rule of reason analysis, courts are free to consider the intent and options of suppliers. Instead of an IMAP, a supplier could raise its wholesale price across the market. It may choose this course to prevent the margins of retailers and prices at the retail level from falling after retail competition has intensified in a market.¹⁷⁸⁶ If suppliers can discriminate in their prices to retailers, a supplier may lower its price to a retailer that has attained market power, to maintain the quantity of goods sold.¹⁷⁸⁷

Suppliers may implement an IMAP to manipulate a platform. When suppliers have attained greater market power, platforms often respond by lowering its fees to consumers and sellers to encourage more activity or entry on each side of the platform.¹⁷⁸⁸

When IMAPs function as maximum RPM where retailers set prices too high, they can address double marginalization. This claim has plausibility, since most retailers will not exceed an IMAP due to price transparency on the Internet.¹⁷⁸⁹

The possible pro- and anticompetitive effects of IMAP practices suggest that plaintiffs will have difficulty proving an antitrust violation under the rule of reason.

Brazil: The law lists ‘to impose on the trade of goods or services to distributors, retailers and representatives, any resale prices, discounts, payment terms, minimum or maximum quantities, profit margin or any other market conditions related to their business with third parties’ as one of the possible anticompetitive conducts. Resolution 20/99, in turn, also includes a specific definition of resale price maintenance (RPM), meaning the manufacturer establishing, in an agreement, the price (minimum, maximum or fixed) to be adopted by distributors or dealers. Said Resolution consolidates the understanding that fixing minimum prices often results in anticompetitive effects, usually related to easier collusive price practices and increases the manufacturer market power, deterring the entry of more competitive distribution and reducing intra-brand competition. CADE precedents show that the practices considered legal are usually those related to suggestion of resale prices. On the other hand, minimum resale prices, especially when associated with monitoring and punishment measures, tend to raise relevant concerns from CADE’s perspective. The legality of MAPs was discussed in a recent consultation pre-

1785 Alexander I. Passo, Internet Minimum Advertising Price Policies: Why Manufacturers Should Be Wary When Implementing, 48 Suffolk Univ. L. Rev. 795, 815 (2015). The District of Maine has found an IMAP policy to support a price-fixing conspiracy between manufacturers. *Id.* at 820 (citing *In re Compact Disc*, 216 F.R.D. 197, 199-200 (D. Me. 2003)).

1786 Jeanine Miklos-Thal & Greg Shaffer, Input Price Discrimination by Resale Market, p. 16 (5 June 2019), available at: <https://ssrn.com/abstract=3191951>.

1787 *Ibid.*, p. 26.

1788 Mark J. Tremblay, Vertical Relationships within Platform Marketplaces, p. 2 (12 July 2016).

1789 John Asker & Heski Bar-Isaac, Vertical Information Restraints: Pro- and Anti-Competitive Impacts of Minimum Advertised Price Restrictions, NBER Working Paper 22771, p. 21 (2016), available at: <http://nber.org/papers/w22771>.

sented to CADE by Continental. Continental intended to implement an MAP to its retail distributors in the aftermarket tyres segment, aiming to preserve its business model. After recognizing the ambiguous effects generated by the MAP to consumer welfare, CADE concluded that the policy to be implemented by Continental was legal, considering: the absence of market power; the fact that the MAP was unilaterally designed by Continental; and the absence of any type of discrimination between Continental's distributors.

Russia: In Russia, Article 11 (2) of the Federal law dated 26 July 2006 № 135-FZ "On Protection on Competition" prohibits vertical agreements that 'result or may result in the maintenance of the resale price of goods, unless the seller sets the maximum resale price (RPM); or vertical agreements that set forth the buyer's obligation not to sell the goods of the seller's competitor (exclusivity). These vertical agreements are *per se* prohibited unless they are considered acceptable based on the Article 12 of the Federal law "On Protection on Competition" (commercial concession agreements; vertical agreements between the undertakings whose market shares on the product market forming the object of the agreement do not exceed 20%; their aggregated turnover does not exceed the specific threshold).

The FAS has reviewed some cases related to coordination of the prices of online distributors/resellers. Thus, in its decision dated 27 March 2017 in the *Apple* case¹⁷⁹⁰ the FAS established that Apple Rus was engaged in practices aimed at maintaining the uniform level of prices for the certain models of Apple smartphones in the Russian Federation. This included publishing press-releases with recommended prices of Apple smartphones that were available to Apple's distributors and resellers. As such, one may doubt that the practice could indeed be sufficient to trigger a competition law violation. However, this must be understood in a broader context, where Apple Rus imposed control over the prices actually set by its resellers and distributors through e-mail communication, 'reports' with competitors' prices sent by resellers, as well as through specific contract clauses (allowing Apple Rus to suspend or cancel orders without explanation). This constitutes an effective mechanism of maintaining the prices at the uniform level 'recommended' by Apple, in line with the approach to RPMs adopted in the *EU Vertical Restraints Guidelines*.

However, the FAS did not find the existence of a vertical restraint in this case, and qualified the violation as coordination of economic activity that affects competition (Article 11(5) of the Federal law "On Protection on Competition"). This is related to a restrictive interpretation of the concept of 'vertical agreements' by the FAS of Russia. In accordance with the Clarification of the Presidium of the FAS of Russia N.2 dated 17 February 2016, "vertical" agreements are implemented through civil contracts providing the transfer of goods from one person to another (sale agreement, supply agreement, distribution agreements, etc.). Civil contracts or agreements that do not provide for the transfer of goods from one person to another cannot be considered as "vertical" agreements". Therefore, the lack of formal supply/distribution contracts between Apple and some of

1790 Decision of the Federal Antimonopoly Service of the Russian Federation dated 27 March 2017 № 1-11-59/00-22-16 <https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-20961-17>.

resellers (who bought smartphones from Apples distributors and not from Apple directly) was the reason why such practices could not be qualified as vertical restraints.¹⁷⁹¹ A similar case in 2018 concerned LG Electronics.¹⁷⁹² It refers to exactly the same practices of LG Electronics Rus regarding maintenance of the prices for LG smartphones in Russia. Again, the FAS qualified LG practices as coordination of economic activity, and not as vertical restraints, due to the lack of formal contractual relationships.

The case-law described above demonstrates that the approach of the FAS to RPM practices is quite formalistic, as it hinges upon the concept of ‘transfer of good’. However, Article 11 of the Federal law “On Protection on Competition” still allows such practices to be qualified as anti-competitive coordination, provided that the seller and the buyers are not active at the same market.

India: In *Ashish Ahuja vs. Snapdeal*, the CCI looked into the issue of resale price maintenance. In this case, complainant is engaged in selling various computer and mobile accessories, whereas opposite party (Snapdeal) is a popular online market place, wherein different players sell their products for which the web portal charges a commission.

The Complainant used to sell its product via the e-portal of the opposite party. Subsequently, the Complainant was removed from the e-portal and was not allowed to sell its product. The reason for Snapdeal to take such a step was that the manufacturer (ScanDisk) insisted that the storage device (relevant product) sold through the e-portal should be bought from its authorised dealer to avail after-sale service warranties. The complainant alleged that by this practice, Snapdeal and ScanDisk are indulging in RPM, curtailing the freedom of sellers to offer better price for consumers.

The CCI did not find fault in such insistence upon ScanDisk and subsequent measure taken by Snapdeal. The CCI observed that ScanDisk is within its rights to protect the sanctity of distribution channel and that vide its circular, ScanDisk had only clarified that the full range of all India after sales and warranty services offered by it is limited to those products brought from its authorised national distributors. The CCI stated “In a quality-driven market, brand image and goodwill are important concerns and it appears a prudent business policy that sale of products emanating from unknown/unverified/unauthorised sources are not encouraged/allowed”.

However, in another case, *M/s Jasper Infotech Private Limited (Snapdeal) Vs. M/s Kaff Appliances (India) Pvt. Ltd.*, with similar facts as above, the CCI had a *prima facie* opinion that Kaff was involved in RPM and ordered an inquiry. In this case, Kaff Appliances had written to Snapdeal that it would not extend warranties to the products sold by unauthorised dealers or distributors.

Unlike ScanDisk in the earlier case, here Kaff Appliances had clearly mentioned, “If MOP [Market Operating Price] of its products is not maintained then they will not allow Snap-

1791 See FAS decision dated 27 March 2017 № 1-11-59/00-22-16, <https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-20961-17>.

1792 Decision of the Federal Antimonopoly Service of the Russian Federation dated 02 March 2018 № 1-11-18/00-22-17 <https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-14552-18>.

deal to sell its products either by authorised or unauthorised dealers or distributors". This had lead the CCI to conclude that there is a prima facie case of RPM under the Competition Act and ordered further investigation.

It might be noted that in *Ashish Ahuja vs. Snapdeal* also the discounted price offered by the Complainant was the core issue that triggered the manufacturer (ScanDisk) to issue a circular. However, there was no direct mention of MOP in the circular. Moreover, had there been an investigation, more information would have come up that could have tilted the CCI's conclusion.

Be that as it may, the product involved in this case seems to have been obtained through 'parallel import'. It should be noted that parallel import is pro-competitive, and the issue should have been raised before the CCI. One of clauses of the above-said ScanDisk circular was: "All third party importers apart from the above-named four authorised national distributors are parallel importers and ScanDisk Corporation does not authorise, endorse or support parallel importation". While different countries have different regimes with respect to parallel imports, India follows international exhaustion of Intellectual Property (IP) rights with the exception of copyright. Hence, the part of the circular that contravenes or does not go along with the Indian law can be deemed invalid. This issue however was not raised by the Complainant or by the CCI *suo motu*.

6.3.5. Dual distribution and dual role (platform/retail) of online platforms

'Dual distribution' exists when the manufacturer simultaneously sells to independent dealers and is also present at the distribution level of the commercialization process by supplying customers directly. This is increasingly the case with e-Commerce where some digital platforms exercise a dual role as marketplace and online retailer. For instance, Amazon Marketplace offers merchants a wide range of functionalities. They can use the Amazon Marketplace as a new or additional sales channel, building on Amazon's brand. They can also purchase additional Amazon services such as warehousing their products in Amazon's fulfillment centers, where Amazon handles the packing and shipment of the goods and provides customer service for the merchants. In addition, Amazon collects and transfers shopper payments to the merchants. At the same time, Amazon is one of the largest online retailers itself. Depending on the product, Amazon's own retail offerings may directly compete with those of the merchants using the Amazon Marketplace. Due to the comparable platform and similar shopping experience, many shoppers may not recognize any difference between Amazon's own retail services and its marketplace activities for other merchants.

Dual distribution may take different forms: the manufacturer may operate its own distribution network in competition with other retailers or he may choose to establish an independent exclusive distribution system but will preserve certain territories for his own distribution outlets. To the vertical relation that usually links the manufacturer with independent dealers, dual distribution adds a horizontal layer, as the manufacturer competes with the dealers of his network (intrabrand downstream competition) and

with all other dealers in the relevant market (interbrand downstream competition). Unlike the conventional horizontal competition between suppliers, 'the dual distributing manufacturer creates competition with himself by supplying a dealer'¹⁷⁹³.

This hybrid relationship has confused competition law authorities and courts, as it is difficult to decide which, horizontal or vertical, dimension should prevail in order to characterize the agreement as being vertical or horizontal. For example, the supplier's suggestion of a resale price and the retailer's acceptance of that suggestion may be qualified as horizontal price fixing, as the supplier and the retailer are also in direct horizontal competition. There are a number of pro-competitive justifications for dual distribution practices. First, they offer an opportunity for the manufacturer to monitor the performance of his retailers. By being present at the distribution level the manufacturer will be able to collect information on the optimal level and quality of distribution services for the final consumers and will thus take this information into account in order to fine tune his decision to impose vertical restrictions that will provide adequate competitive incentives at the retail level¹⁷⁹⁴. Second, the manufacturer will be able to prevent free riding, encourage the provision of presale services, protect his reputation, and avoid opportunistic behaviour by the dealers. Third, dual distribution also increases the opportunities to serve different types of customers, in particular those that the manufacturer's regular dealers do not serve. Fourth, the manufacturer may engage in price discrimination, which in some cases may be beneficial to consumers, in particular if imperfect price discrimination to low value buyers has the effect to increase output. De facto discrimination could, however, also be achieved without employing a dual distribution practice. It would be possible to impose intrabrand restraints on independent dealers and maximum resale prices or to charge all dealers the same price and provide a rebate on re-sales to specific categories of consumers.

There is no reason to examine dual distribution differently from other vertical restraints, as the same effects may be similarly achieved by more conventional vertical distribution practices. Dual distribution will not generally increase manufacturer's market power. Herbert Hovenkamp observes that: (a) manufacturer who has no market power cannot use dual distribution to create it. Furthermore, even a monopoly manufacturer generally cannot increase its market power by insulating its wholly-owned retail outlets, even if the effect is to injure competing, independent retailers. If the manufacturer has market power, any monopoly profits earned at the retailer level could also be earned at the manufacturer level¹⁷⁹⁵. The horizontal dimension of dual distribution may also be a source of anticompetitive effects, in particular horizontal collusion. Nevertheless, collusion at the retail level will not be in the interest of the manufacturer, the latter preferring to limit any possibility of double marginalization and having no interest to participate in a cartel seeking to create market power at the retail level. Most often the reason that

1793 P. E. Areeda, *Antitrust Law Volume VIII*, ¶1606, 91 (Little, Brown & Company, 1989).

1794 See: Y Yehezkel, 'Downstream Competition Between an Upstream Supplier and an Independent Downstream Firm' Working Paper (March 2003) accessed 10 April 2008.

1795 H Hovenkamp, *Federal Antitrust Policy: The Law of Competition and its Practice* (3rd edn, 2005) 49.

manufacturers enter the distribution level is to combat collusion at the retail level¹⁷⁹⁶. A restriction of intrabrand downstream competition may affect the distribution of profits between the supplier and the retailers but ‘will not affect output to consumers since both suppliers and dealers have a considerable interest in achieving a level of output that maximizes their joint profit level’¹⁷⁹⁷. If one follows this approach, dual distribution agreements should not be treated differently from vertical restraints. Steiner’s analysis may nevertheless shed light into a less anticipated anti-competitive concern raised by dual distribution practices. As it has been previously suggested, competition authorities and courts should adopt a dual stage approach and should examine the effect of vertical restraints on both horizontal and vertical competition. Traditional analysis has focused on horizontal competition at the supplier and the retailer levels and has ignored vertical competition between the supplier and the retailers over the sharing of the profits of the vertical structure. If one takes into account this dimension of competition, the manufacturer may have the incentive to limit vertical competition by imposing price or nonprice restraints on the retailers of his network competing with him at the retail level. His incentive will be to limit the retail gross margin and to increase his vertical market share or profits upstream to the detriment of independent retailers. This may harm consumers if the manufacturer’s product benefits from an important brand loyalty. These restraints will be particularly harmful if a high percentage of the manufacturer’s brands sales are made by manufacturer-owned retail outlets or if the manufacturer imposes a vertical restraint to dealers that sell both his brand and competing brands and therefore reduces interbrand downstream competition¹⁷⁹⁸. The supplier may also want to eliminate competition among retailers in order to raise the profits of his retail outlet. The retail price will in this case be higher than in the absence of dual distribution¹⁷⁹⁹. The anti-competitive effects of dual distribution practices may be stronger than those of purely vertical restraints but they are in any case less harmful for consumers than purely horizontal restraints.

The dual role of Amazon as “the largest retailer and largest marketplace” has recently led to the opening of two parallel investigations by the European Commission and the Bundeskartellamt (announced on 19 September¹⁸⁰⁰ and 29 November 2018¹⁸⁰¹, respectively). Both investigations were triggered by several complaints of abuse of dominant position to the detriment of sellers active on the Amazon Marketplace, but the focus is slightly different: in the European Commission’s investigation, the investigated conduct relates to Amazon’s use of accumulated marketplace seller data to compete

1796 Ibid. See also: P M Ippolito, ‘Resale Price Maintenance—Economic Evidence from Litigation (Bureau of Economics Staff Report, Federal Trade Commission) (April 1998), 59–60 accessed 10 April 2008.

1797 R. Zwirb, ‘Dual Distribution and Antitrust Law’ [1988] 21 Loyola of Los Angeles Law Review 1273, 1289

1798 See for the same approach: National Association of Attorneys General (NAAG) ‘Revisions to the National Association of Attorneys General Vertical Restraints Guidelines’ (Resolution 1995, reprinted in 4 TRADE REG. REP. (CCH) ¶ 13,400), para 2.3. accessed 10 April 2008

1799 See: D Gilo, ‘Private Labels, Dual Distribution and Vertical Restraints—An Analysis of the Competitive Effects’,

1800 <https://audiovisual.ec.europa.eu/en/video/I-160574>

1801 https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html

downstream as a retailer. By contrast, in the German investigation, the practice under scrutiny is the use of abusive terms of business and related practices, including provisions limiting liability to the disadvantage of sellers, the choice of law and jurisdiction clauses, the rules on product reviews, the non-transparent termination and blocking of sellers' accounts, the withholding or delaying payment, and clauses assigning rights to use the information material which a seller has to provide with regard to the products offered and terms of business on pan-European despatch. It is also important to note that the German competition authority mentions that such conduct is relevant not only on grounds of Amazon being in a dominant position as a retailer, but also in light of the economic dependence of sellers on Amazon's marketplace: the authority is thus also concerned about the use of relative or superior market power, a form of market power that the authority is expressly entitled to pursue to the extent that small or medium-sized enterprises as suppliers or purchasers of a certain type of goods or commercial services depend on them in such a way that sufficient and reasonable possibilities of switching to other undertakings do not exist¹⁸⁰². On 17 July 2019, the Bundeskartellamt closed the investigation accepting the commitment offered by Amazon to address the competition concern¹⁸⁰³, which include the following changes to its business terms:

- No limitation of liability for products sold on its marketplace;
- Termination and suspension of sellers' accounts will only be possible upon provision of statement of reasons and following a 30 days notice period;
- No longer exclusive jurisdiction for dispute resolution in Luxemburg courts for all European marketplaces
- Right for sellers to object to unjustified returns and reimbursements obtained by customers through Amazon;
- More limited rights for Amazon to use sellers' product information, and no requirement for sellers to provide Amazon Market place with products of the same high quality as the ones used in other sales channels;
- Increased ability for sellers to make public statements about their business relations with Amazon without Amazon's written prior approval.
- More salience and traceability for the rules and regulations applicable to sellers, and right to receive 15 days' notice for any changes thereto;
- Amazon's own "Vine" rating programme, which was previously available only to suppliers of Amazon Retail, will be gradually made available to those marketplace sellers which own a brand name registered with Amazon.

1802 See Gesetz gegen Wettbewerbsbeschränkungen, § 20. See also the assessment by Friso Bostoen, 'It's raining Amazon probes: the Bundeskartellamt joins the Commission in investigating the tech giant's marketplace practices', CoRe Blog (9 Jan 2019), at <https://coreblog.lexxion.eu/its-raining-amazon-probes/>

1803 https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/17_07_2019_Amazon.html

Interestingly, the commitment adopted by Amazon with the Bundeskartellamt are of global geographical scope. This is a strategic concession, as it helped alleviate the similar concerns expressed by the Austrian competition authority, who had opened an investigation in February 2019 about the following unfair trade practices:

- abrupt termination of seller-accounts
- obligation to disclose purchase prices
- adding of incorrect delivery details by Amazon to the sellers' accounts
- unjustified loss of product rankings of sellers
- jurisdiction clauses, which complicate to take legal actions¹⁸⁰⁴.

As a result of these commitments, the Austrian competition authority issued a press release on the same day of the closing of Bundeskartellamt's investigation and of the formal opening of the investigation by the European Commission¹⁸⁰⁵, informing that it will not continue its own investigation¹⁸⁰⁶. In the meantime, however, another investigation was opened by the Italian competition authority on different grounds, namely that Amazon would grant advantages in terms of visibility and improvement of sales on Amazon.com to sellers that are registered with the "Fulfillment by Amazon" program – which involves the delegation to Amazon of the placement of orders, the stocking in Amazon's warehouses, the packaging and shipping as well as the post-sale assistance¹⁸⁰⁷. Among the considerations relied upon by the Autorita' Garante to open its investigation is the fact that the marketing for the "Fulfillment by Amazon" program explicitly mentions "price advantages", "protection from negative feedback" and "improved indexing" on its Marketplace,¹⁸⁰⁸ and that sellers can gain access to the "Buybox" option (which Amazon allocates to top sellers, and through which more than 80% of the sales take place¹⁸⁰⁹) despite the fact that the price of their product is higher than those of competitors who don't rely on the program¹⁸¹⁰. The authority reached the preliminary conclusion that this conduct amounts to an abusive self-preferencing, made possible by the dual role of Amazon, which leverages its dominant position in e-commerce marketplace into the neighbouring market for e-commerce logistic in which Amazon operates¹⁸¹¹. This leveraging can also reinforce Amazon's dominant position in the e-commerce marketplace, as it may lead sellers who want to be effective on Amazon Marketplace to forego the duplication of costs implicated by alternative logistic arrangements and ultimately abandon other marketplaces altogether¹⁸¹².

US

1804 https://www.bwb.gv.at/en/news/detail/news/austrian_federal_competition_authority_initiates_investigation_proceedings_against_amazon/

1805 https://europa.eu/rapid/press-release_IP-19-4291_en.htm

1806 https://www.bwb.gv.at/news/detail/news/bwb_informiert_amazon_aendert_geschaeftsbedingungen/

1807 <https://www.agcm.it/media/comunicati-stampa/2019/4/Amazon-avviata-istruttoria-su-possibile-abuso-di-posizione-dominante-in-marketplace-e-commerce-e-servizi-di-logistica>

1808 Ibid., para. 37

1809 Ibid., para. 27

1810 Ibid., para. 38

1811 Ibid., para. 85

1812 Ibid., para. 84

News report in June 2019 indicated that the FTC was investigating three practices of Amazon that related to its status as a dual distributor, although the FTC has declined to comment on the case¹⁸¹³. However, FTC Chairman Joe Simons publicly confirmed the ongoing investigation¹⁸¹⁴.

The first practice that the FTC allegedly was asking Amazon's rivals about concerned how Amazon priced its fulfillment services. These services consist of storing goods in Amazon warehouses and having Amazon pack and ship orders, and interact with customers about the orders. Many orders occur on Amazon, but Amazon offers the same services for sale off the Amazon platform, whether the manufacturers' own website or another online marketplace. Amazon charges about 75 percent more for fulfillment of purchases that customers make outside of Amazon: \$8.35 instead of \$4.76 to select, pack, and ship an item that weighs between one and two pounds.¹⁸¹⁵

The FTC will have to guard against imposing disadvantages on Amazon relating to practices that offline retailers utilize. Amazon competes in several markets against Walmart, for instance.

The third area of questioning purportedly targets bundling services centered on Amazon Prime. \$119 will buy customers unlimited one-day shipping, access to TV shows, movies, and songs, free online photo storage, and other perks.¹⁸¹⁶ The FTC may be checking whether the bundle permits Amazon to exclude entities that compete in the linked market. Amazon may take its profits elsewhere on the platform. Yet for some of these services, Amazon grows the size of downstream markets and the linked market. It pays for more TV shows, movies, and songs, and it will have difficulty excluding Apple and Netflix. Amazon lacks market power in nearly all of these markets including shipping services, where it competes against the U.S. postal service, UPS, FedEx, and DHL. Amazon designed the bundle to exploit network effects and to exclude at the level of the platform, against rivals whether online or offline.

Another potential area of investigation concerns Alexa and its early lead in the smart home space. The FTC may be focusing on Amazon's role as a dual distributor and the terms of competition that it offers to manufacturers that incorporate Alexa into their devices, or developers that create apps for Alexa.¹⁸¹⁷ Separately, Alexa may have a duty to rank customer requests, and to apply customer criteria, according to relevance.

Russia: The FAS has considered the issue of dual distribution while investigating cases of coordination of economic activity by LG Electronics and Apple.¹⁸¹⁸ In both cases, the

1813 See e.g. Jason Del Rey, 'Amazon may soon face an antitrust probe. Here are 3 questions the FTC is asking about it', Vox (4 June 2019), <https://www.vox.com/recode/2019/6/4/18651694/amazon-ftc-antitrust-investigation-prime>; and Andrew Liptack, 'Amazon will reportedly fall under antitrust oversight from the FT', The Verge (4 June 2019) <https://www.theverge.com/2019/6/2/18649375/amazon-federal-trade-commission-ftc-doj-antitrust>

1814 Naomi Nix, 'Amazon Seller Complaints Drawing FTC Interest, Chairman Says', Bloomberg News (13 August 2019), <https://www.bloomberg.com/news/articles/2019-08-13/amazon-seller-complaints-drawing-ftc-interest-chairman-says>

1815 Del Rey, supra n. 245

1816 Id.

1817 Id.

1818 Decision of the Federal Antimonopoly Service of the Russian Federation dated 27 March 2017 № 1-11-59/00-22-16

Russian subsidiary of the smartphone manufacturer was an exclusive distributor of smartphones in Russia. Both Apple and LG sold smartphones to authorised distributors and resellers and simultaneously operated as a retail seller of these smartphones. This means they were present at both levels of supply chain (wholesale and retail) and were involved in dual distribution. However, the FAS established that while Apple and LG sold smartphones only through brick-and-mortar stores, resellers organized retail sales through either brick-and-mortar or online stores or both. Based on this, the FAS concluded that they operated in different product markets and did not compete with each other. In the same time the FAS noted that resellers were not independent in setting resale prices for smartphones, as Apple and LG coordinated the level of prices for their smartphones and applied sanctions to those who deviated from the recommended resale prices.

It is noteworthy that in these cases the FAS focused on restriction of price competition between resellers at the retail level (horizontal element), rather than on the rent that the exclusive importer of smartphones potentially extracted through the vertical supply chain. Interestingly, the retail prices of, for example, Apple smartphones sold by Apple directly were considerably higher than those set by its resellers, even if coordinated by Apple.¹⁸¹⁹ This might indicate that Apple's strategy of dual distribution aimed at maximizing the joint profit through both channels rather than steering customers to its own distribution channel.

India: On the dual role of platforms, it is important to mention India's Foreign Direct Investment (FDI) Policy, where a distinction has been made between Multi Brand Retail Trading (MBRT) and Single Brand Retail Trading (SBRT). While imposing several restrictions on FDI-led MBRT platforms, the Policy has fewer restrictions on SBRT platforms (even if FDI-led) and domestic MBRT platforms. Foreign MBRT platforms are barred from adhering to 'inventory-model' (i.e. cannot hold stakes in suppliers on its platform) in B2C transactions, and have to strictly follow 'marketplace model' of e-commerce.

Restrictions regarding 'dual role' do not apply to domestic platforms but only on foreign owned platforms (Amazon and Flipkart are foreign owned in India). However, since 100% FDI is allowed in food product retailing, adoption of inventory-model (or dual role) in e-commerce of food & grocery (such as Swiggy, Zomato, Uber Eats, Food Panda; Grofers, Amazon Retail etc.) is still common practice¹⁸²⁰. But it should be noted that restaurants operating on platforms have been raising voice against platforms with their own cloud kitchens¹⁸²¹. As far as hotel sector is concerned, this seems to be in a gray area as

<https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-20961-17> and decision of the Federal Antimonopoly Service of the Russian Federation dated 02 March 2018 № 1-11-18/00-22-17 <https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-14552-18>.

1819 See, for example, Kommersant, 'FAS Has Brought the Case against Apple' (08 August 2016) <https://www.kommersant.ru/doc/3058629> accessed 14 August 2019.

1820 <https://economictimes.indiatimes.com/industry/services/retail/amazon-retail-ups-pantry-play-after-clarity-on-fdi/articleshow/67877279.cms?from=mdr>

1821 <https://economictimes.indiatimes.com/news/economy/policy/cci-calls-meeting-with-restaurants-body-ey-to-discuss-ecommerce-policy/articleshow/70219078.cms?from=mdr>

far as any restrictions on dual role is concerned. Things may get clearer in near future, as complaints are currently being raised by hotel associations against platform owners, including before the Competition Commission of India. The CCI recently decided in favour of a hotel booking platform (OYO) in a case alleging abuse of dominance – *RKG Hospitalities Pvt. Ltd. Vs. Oravel Stays Pvt. Ltd*¹⁸²²

It should further be noted that the Consolidated FDI Policy, 2017¹⁸²³ contains specific rules applicable to e-commerce marketplace: first, they may provide support services (like warehousing, logistics, order fulfilment, payment collection etc.) to sellers¹⁸²⁴ only if on a fair and non-discriminatory basis.¹⁸²⁵ Secondly, they must not exercise ownership or control over any vendor on its platform,¹⁸²⁶ including through group companies and by way of equity participation or control of the inventory,¹⁸²⁷ and shall in any event maintain a level playing field and refrain from influencing the sale price of goods or services, directly or indirectly.¹⁸²⁸ Third, they must not require sellers to offer any product exclusively on that marketplace.¹⁸²⁹

Finally, the full picture of the regulatory framework is completed by the draft National e-Commerce Policy, issued on 23rd February 2019 by the Government of India (Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry)¹⁸³⁰ inviting stakeholders' comments. The draft Policy, bearing tag line "India's Data for India's Development", requires e-commerce entities to make full disclosure to consumers regarding the 'purpose' and 'use' of data collected¹⁸³¹.

6.3.6. 'Enveloping' and bundling strategies

Enveloping and bundling strategies are examined in detail in the Chapter relating to abuse of dominance as most cases involved the use of bundling by dominant digital platforms. We have not identified any bundling or enveloping case by a non-dominant firm in the context of agreements with distributors.

6.4. Conclusions

The above analysis has illustrated the importance of policing vertical restraints in e-commerce, and more generally in a platform-mediated marketplace. Although platforms offer but one possible channel to bring products to the market, they provide a

1822 <https://www.cci.gov.in/sites/default/files/03-of-2019.pdf>

1823 https://dipp.gov.in/sites/default/files/CFPC_2017_FINAL_RELEASED_28.8.17_1.pdf

1824 Para 5.2.15.2.4(iii) of Press Note 2 of 2018

1825 Para 5.2.15.2.4(ix) of Press Note 2 of 2018

1826 Para 5.2.15.2.4(iv) of Press Note 2 of 2018

1827 Para 5.2.15.2.4(v) of Press Note 2 of 2018

1828 Para 5.2.15.2.4(ix) of Press Note 2 of 2018

1829 Para 5.2.15.2.4(xi) of Press Note 2 of 2018

1830 <https://dipp.gov.in/whats-new/draft-national-e-commerce-policy-stakeholder-comments>

1831 Para 3.8, p21, draft National e-Commerce Policy

readily available distribution network and unprecedented scale at great convenience, which is typically impossible to match for any seller. In that connection, there is increasing tension between the attractiveness of this model and the potential cannibalizing effects that relying on platform sales might have on one's own distribution channel. MFN clauses play an important role in that regard, as they enable platforms to ensure price parity with other channels. Hence, the stance that competition law takes in regard to these practices can have significant effects on the structure of the retail market. An important related question is the extent to which outrights bans to use platforms or price comparison tools for certain products are compatible with competition law. However, this has not been an issue in any of the BRICS jurisdictions, where platforms have been perceived as offering a unique opportunity to reach the target audience and enforce selective distribution systems, facilitated by the increased ability to monitor and detect deviations from selective distribution systems (while also, possibly, to enforce RPMs). Digital technologies also facilitate the enforcement of price discrimination, not only in a geographical sense (for instance through geoblocking, geofiltering and other technological protection measures) but also in a much more granular sense, by the increasing use of targeting and personalized pricing, which is examined in a separate Chapter of this Report. With regard to content distribution, it was noted that there are reasons to doubt that BRICS jurisdictions will condone the extension outside the protected territory of contractual restrictions imposed by copyright owners onto platforms, which are applying in the EU and constitute a reflection of the stricter EU copyright regime. This suggests that BRICS economies are likely to maintain a significantly different landscape for content distribution and copyright enforcement, despite the global or macro-regional nature of prevalent platform businesses.

With the increasing platformization of retail, perhaps the most contentious topic is the compatibility with competition law of the dual role played by e-commerce operators, which serve both as "referees" in the market place and as retailers operating in that market. This is an issue that is currently being investigated or has been subject to investigation in several EU jurisdictions, the United States, Russia and India. India has gone as far as issuing a comprehensive regulation on e-commerce and foreign direct investment policy forcing foreign-owned platform to be merely a marketplace, rather than provide products through their own inventory, to refrain from imposing exclusivity and to maintain a level playing field. Whether this policy of *ex ante* regulation is preferable to antitrust enforcement and is likely to be followed by other BRICS jurisdictions remains to be seen. However, what is clear is that in this new technological environment competition authorities and courts are called to play increasing attention to the dynamics of competition within and across platforms ecosystems.

Authorities should be cautious with the application of the so-called agency immunity, as that applies only under restrictive conditions. Most notably, the immunity cannot apply where one of the parties has significant market or even bargaining power, either in the platform market or in the market for the product or service in question. This is particularly important as platforms may be able to impose on members of their ecosystem

vertical distribution restraints (such as APPAs) to increase their power and then exploit their superior position without having to worry too much about market contestability. A similar dynamic applies to consumers, who are typically single-homing and locked in, or at least reluctant to abandon the convenience of wide variety of products at the cost of a click, and lack the ability to appreciate price discrimination and other forms of exploitation.

Finally, the immunity cannot be invoked where the arrangement between the putative agent and principal involve horizontal collusion. This is an area that has seen significant enforcement, particularly in Russia and India, where authorities have condemned platform-enabled hub and spoke agreements. Once again, queries can be raised as to whether it would be prudent to extend this approach across the entire BRICS.

TableAnnex 6.21: BRICS NCAs Feedback on Vertical Online Restrains

Vertical online restraints	BR	RN*	IN†	CN‡	ZA
In your jurisdiction, what is the approach followed with regard to vertical online restraints?	A rule of reason approach	Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.	No information available	Per se illegality approach A rule of reason approach	A rule of reason approach A structured quasi per se illegality approach Per se illegality approach
In particular, what is the approach followed with regard to: Geo-blocking/ geo-filtering practices	Resolution CADE 20/99 has a specific provision on territory restrictions and customer base, by which the manufacturer determines geographic boundaries to the operation of the distributors or dealers. Accordingly, practices of this nature may restrict competition and competitors' entry in several regions, facilitating collusive practices and unilateral increases of manufacturers' market power. Nevertheless, considering that the practice shall be analysed under the rule of reason, Resolution CADE 20/99 also provides that the possible benefits in terms of transactional cost savings should be taken into consideration when reviewing these cases.	Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.	No information available	A rule of reason approach	A rule of reason approach
Selective distribution in an online world: online commerce bans, restrictions on the use of marketplaces and/or price comparison tools	The Brazilian Competition Law does not provide for any specific guidance in respect to selective distribution. Nevertheless, an assessment by CADE will likely be made under the rule of reason on a case-by-case basis, balancing the anticompetitive effects and the economic efficiencies of the practice.	Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.	No information available	A rule of reason approach	A rule of reason approach

	In addition, the assessment would likely relate to some of the provisions established by Resolution CADE 20/99 for restrictions on territory and customer base or refusal to deal. Their potential anticompetitive effects, therefore, could be related to blockage to, and increase in, barriers to entry into the distribution or supply channels.				
Most Favoured Customer/Nation (MFC/MFN) clauses, also called Parity clauses	A recent case of unilateral conduct in the digital market involved three major online travel agencies (OTAs) operating in Brazil (Booking, Expedia, and Decolar), which were investigated due to the adoption of MFN clauses. According to the General Superintendence, such clauses may restrict competition between the OTAs in question and other OTAs and hinder new platforms from entering the market. The case was closed with cease-and-desist agreements involving the three companies, in which the companies agreed to cease the adoption of wide MFN clauses, but the use of narrow clauses was allowed, so that the companies could request parity treatment with regard to websites of the accommodation providers. This agreement was based on the understanding that prohibiting MFN clauses under all circumstances might give hotels incentives to free ride and offer deals at lower prices than the ones announced on the OTAs platforms.	Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.	No information available	A rule of reason approach	A rule of reason approach
Online RPM and RPM facilitating conduct: Minimum Advertised Price Agreements (MAPs) and dual pricing restriction	The law lists 'to impose on the trade of goods or services to distributors, retailers and representatives, any resale prices, discounts, payment terms, minimum or maximum quantities, profit margin or any other market conditions related to their business with third parties' as one of the possible anticompetitive conducts. Resolution 20/99, in turn, also includes a specific definition of resale price maintenance (RPM), meaning the manufacturer establishing,	Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.	No information available	Per se illegality approach	A rule of reason approach

	<p>in an agreement, the price (minimum, maximum or fixed) to be adopted by distributors or dealers. Said Resolution consolidates the understanding that fixing minimum prices often results in anticompetitive effects, usually related to easier collusive price practices and increases the manufacturer market power, deterring the entry of more competitive distribution and reducing intra-brand competition. CADE precedents show that the practices considered legal are usually those related to suggestion of resale prices. On the other hand, minimum resale prices, especially when associated with monitoring and punishment measures, tend to raise relevant concerns from CADE's perspective. The legality of MAPs was discussed in a recent consultation presented to CADE by Continental. Continental intended to implement an MAP to its retail distributors in the aftermarket tyres segment, aiming to preserve its business model. After recognizing the ambiguous effects generated by the MAP to consumer welfare, CADE concluded that the policy to be implemented by Continental was legal, considering: the absence of market power; the fact that the MAP was unilaterally designed by Continental; and the absence of any type of discrimination between Continental's distributors.</p>				
Leveraging/ Tying/bundling practices	<p>The law lists the practices of leveraging, tying and bundling as possible anti-competitive conducts, which shall be analyzed under the rule of reason.</p>	<p>Up to the moment the FAS Russia has no enforcement experience on vertical online restraints.</p>	<p>No information available</p>	<p>A rule of reason approach</p>	<p>A rule of reason approach</p>
<p>In particular, in your view are the existing rules under the relevant national competition laws sufficient to address vertical restraints in the digital economy?</p>	<p>YES</p>	<p>Proposed amendments do not address the issue of vertical restraints</p>	<p>No information available</p>	<p>The basic framework and principles of the existing Anti-Monopoly Law are sufficient to deal with the competition caused by the digital economy. The Anti-Monopoly Law protects fair competition in the market, which means that all operators are equal</p>	<p>Jurisdictional reach is a challenge for authorities in these cases as competition authorities may sometimes struggle to hold to account global entities with limited presence in South Africa.</p>

				<p>before the law. The Internet sector is also regulated under the Anti-Monopoly Law. Any operator that violates the Anti-Monopoly Law must accept the investigation of the national competition authorities and assume corresponding legal liabilities. The State Administration for Market Regulation, responsible for the unified anti-monopoly law enforcement in China, attaches great importance to the competition in the new economic field. The State Administration supervises the development of emerging fields such as the Internet according to the principle of inclusiveness, protects fair competition in the market, and provides an inclusive development atmosphere for new Internet formats and new operation models.</p> <p>It is necessary to fully utilise market mechanism, enhancing the role of innovation in driving the Internet industry; it is also necessary to improve the Internet industry's regulatory system, working synergistically with relevant departments, strengthening market surveillance in accordance with the law, effectively regulating the competition of platforms, investigating the alleged anti-competitive conduct, preventing the formation of industry monopolies and market barriers, protecting the legitimate rights and interests of consumers and the public interests, and guiding the healthy and orderly development of the Internet industry.</p>	<p>This is especially where the evidence is located elsewhere and the authority faces numerous legal hurdles to securing that evidence, typically without success. Limited resources and the complexity of digital market cases are a further impediment to effective market conduct enforcement in a developing country context.</p>
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Source: Information provided by NCAs of BRICS countries

* Up to the moment, RU and ZA have no enforcement activity in vertical online restraints.

† India: no feedback received.

‡ CN: At present, the same provisions apply to both online and offline vertical monopoly agreements. Article 13(2) of the Anti-Monopoly Law states that the term “monopoly agreements” refers to the agreements, decisions or other concerted behaviours that may eliminate or restrict competition. Article 14 stipulates that business operators are prohibited from reaching any of the following monopoly agreements with their trading parties: (i) fixing the price of commodities for resale to a third party; (ii) restricting the minimum price of commodities for resale to a third party; or (iii) other monopoly agreements as determined by the Anti-monopoly Law Enforcement Agency under the State Council.

Table 6.3. Annex 2: Online Vertical Restraints: A Comparative Perspective

Restrictions on sales	<ul style="list-style-type: none"> • Geo-blocking • Geo-filtering • EU prohibits geo-blocking and geo-filtering that may raise barriers to cross-border online activity • BRICS countries: no enforcement yet; - BR Resolution CADC 20/99 applies a rule of reason analysis; - RU rule of reason; - IN rule of reason; - CN rule of reason; - ZA rule of reason
Online sale bans and platform bans and restrictions	<ul style="list-style-type: none"> • selective distribution limiting the number of distributors, requiring the satisfaction of certain conditions e.g. luxury goods, electronic goods etc. • EU prohibited (e.g. absolute ban) but may be acceptable based on objective justification • BRICS countries: no enforcement except India; - BR: Resolution CADC 20/99 rule of reason; - RU rule of reason; - IN different direction, namely to see e-commerce platforms as a crucial vehicle for the implementation of selective distribution but note Foreign Direct Investment Policy prohibited selling products of companies they have an equity interest in or entering exclusive agreements with sellers/sellers; - CN rule of reason; - ZA rule of reason
Price discrimination and targeting	<ul style="list-style-type: none"> • Behavioural pricing or personalised price discrimination, person-specific pricing • EU may be qualified as a form of price discrimination prohibited in case other trading partners are placed at a “competitive disadvantage”, including end consumers and competitive disadvantage may be presumed • BRICS countries: - BR: CADC; Imposition of price parity clauses sufficient to reduce incentives for competition between OTAs and increase barriers to entry, commitments obtained; - RU rule of reason; - IN: rule of reason; - CN rule of reason; - ZA rule of reason
Across Platform Parity Agreements (APPAs)	<ul style="list-style-type: none"> • Enable platforms to ensure price parity with other channels (e.g. most favoured customer (MFC) or Most Favoured Nation (MFN) clauses (wholesale or retail), parity clauses or Across Platform Parity Agreements (APPAs)) • EU problematic: number of cases addressing MFN clauses; e.g. France adopted a ban price parity clauses regarding contracts between hotels and OTAs, offline or online • BRICS countries: - BR rule of reason; - BR rule of reason; - IN rule of reason; - CN rule of reason approach; - ZA rule of reason approach
Online RPM or RPM facilitating conduct	<ul style="list-style-type: none"> • RPM in online markets (RPM), conduct facilitating RPM, such as Internet minimum advertised price restraints (IMAP) and dual pricing • EU IMAP is a form of RPM similar to the US apply a rule of reason analysis • BR competition law and Resolution 20/99: consultation, rule of reason; RU prohibited unless de minimis, formalistic analysis; IN case law indicates its not prohibited, rule of reason analysis; - CN per se illegality; - ZA rule of reason
Dual distribution and dual role (platform/retail) of online platforms	<ul style="list-style-type: none"> • Manufacturer simultaneously sells to independent dealers and is also present at the distribution level selling directly to customers (agreement vertical or horizontal?) • EU: various Amazon investigations, some concluded based on commitment; US: FTC launched an investigation of Amazon practices • BRICS Countries: - BR rule of reason; - RU rule of reason; - IN Foreign Direct Investment (FDI) Policy, Multi Brand Retail Trading (MBRT) and Single Brand Retail Trading (SBRT); - CN rule of reason; - ZA rule of reason
“Enveloping” and bundling strategies	<ul style="list-style-type: none"> • EU no cases identified by a non-dominant firm in the context of agreements with distributors. Usually arise under abuse of dominance • BRICS Countries: - BR rule of reason; - RU rule of reason; - IN Foreign Direct Investment (FDI) Policy, Multi Brand Retail Trading (MBRT) and Single Brand Retail Trading (SBRT); - CN rule of reason; - ZA rule of reason

Source: Author’s illustration

Chapter 7. Exclusionary and unfair unilateral practices in reference to Platforms

**Bjorn Lundqvist, Ioannis Lianos, Wang Xianlin, Matt Strader with Igor Nikolic,
and the BRICS teams**

7.1. Introduction

There is an intense academic discussion regarding whether consumers and business users are exposed to conduct that may amount to competition law abuses when using services on the Internet. The discussion is connected to the Internet phenomenon of ‘platforms’ or intermediaries, i.e. Internet sites where users and potential purchasers of services and products are matched and interact with advertisers, business users, service provider or suppliers. Indeed, the rise in importance of platforms – as an intermediate – in all branches of industry is obvious to everyone.¹⁸³² Yet, the consequences of this paradigm shift in the value chain is not clear.

Internet platforms may due to certain special and somewhat unique characters, like network effects, tipping and path dependency, become central ‘hubs’ in the digital value chain and bottlenecks in the vertical interface between purchasers and suppliers.¹⁸³³ The economists seem to tell us that only a limited number of platforms may exist on the Internet, hubs in separate large ecosystems consisting of a main service, the platform, and several connected neighbouring services.¹⁸³⁴ Well-known ecosystems mainly focused on marketing to consumers are the Google and the Amazon ecosystems, while there are also Industrial Internet platforms and ecosystems being developed.¹⁸³⁵

In each ecosystem, a platform constitutes the central arrangement in the digital value chain between business users and consumers. The multitude of direct customer – supplier transactions are to an increasing degree replaced on the Internet by an intermediate, the platform, matching the customer with the supplier. Platforms are able to do so because they provide efficient and easy purchases. Choice is reduced on platforms since consumers/users to a higher degree delegate the purchasing decisions to inter-

1832 There are several forms of platforms, especially, when taking into consideration Internet of Things and Industrial Internet. For an overview see *supra* chapters 2 and 3. See also Geoffrey G. Parker, Marshall W. van Alstyne & Sangeet Paul Choudary, “Platform Revolution: how networked markets are transforming the economy and how they make them work for you”, W.W. Norton, New York, 2017.

1833 See discussion *supra* Chapters 2 and 3.

1834 *Ibid.* Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 5.

1835 See generally Ying Zhang, et al “Long/short-term utility aware optimal selection of manufacturing service composition towards Industrial Internet platform,” in IEEE Transactions on Industrial Informatics.

mediaries, abdicating the need to stay informed to be able to take the right commercial and business decisions by handing over the relevant personal and non-personal data to intermediaries to make or simplify the decision for them. The intermediaries select the level of price and quality that customers view, which can change based on personal data.¹⁸³⁶ Finally, there is a lock-in effect, where both businesses, by making use of platforms providing customers, and individuals, by providing their data and delegating commercial decisions to the platforms, will become dependent on the intermediaries to make decisions for them.

Generally, the platform business activities are addressed today under competition law mainly on three different levels and even though there are overlaps, perceiving the industry in levels works well.

First level, the competition between platforms or ecosystems, ie inter platform competition, and while the competition at this level seems fierce, there are incidents which might amount to competition law violations. For example, platform providers regularly exclude or refuse services of competing platform providers on their respective platforms.¹⁸³⁷

Secondly, there is a relevant discussion regarding the restraints the system leaders of the platforms or ecosystems burden the business users connected to the ecosystems. Indeed, intra platform or intra ecosystem competition is a relevant notion. Business users wanting to be recognised and present in the ecosystems and on the central platforms needs to agree on terms and conditions that might cause exclusion of competition, or which might be considered unfair.

Thirdly, in reference to data, several Internet sites, devices and machines are already today equipped with sensors to collect data and devices may run software to control and make interoperable the functioning of machines, but also to enable the interoperable smart kitchens, vehicles, and even cities. The system leaders of these smart interoperable systems may act as gatekeepers, controlling and locking-in customers, while excluding or limiting interoperability with other systems, specific device or machine producing firms and customers, based on the access, use and re-use of data. The technic for excluding firms could be contractual, technical (based on private or privileged private application programming Interfaces (APIs)), or based on superior data access. The restraints may at a first glance be seen as vertical, but, may, at a closer look be horizontal since the system leader is either vertically integrated or the restrictions aim to fend off potential or system related competition. Indeed, access to up-to-date data (nowcasting¹⁸³⁸) may often blurr the boundaries of relevant markets and also the divide between

1836 Paul Belleflamme & Martin Peitz, *Industrial Organization Markets & Strategies* 663-64 (2010); Mark R. Patterson, *Anti-trust Law in the New Economy* 75 (2017).

1837 See for example Google and Amazon feud that ended with a truce regarding streaming technology and features. Google will let Amazon have a real YouTube app on its Fire TV platform, and Amazon will expand Prime Video support to Chromecast and all Android TV devices. Ryan Whitwam, *Amazon, Google Finally End YouTube Streaming Feud*, on April 18, 2019, <https://www.extremetech.com/internet/289858-amazon-google-finally-end-youtube-streaming-feud>. See also Spotify complaint to the European Commission regarding "the Apple tax".

1838 Nowcasting is the capacity of a company to use the velocity at which a dataset grows to discern trends before others

horizontal and vertical, diminishing the difference between inter and intra ecosystem competition.

For the above-described conduct to amount to an abuse of dominance, the system leader (or platform) needs to be considered dominant. This issue has been discussed *supra*, yet will be revisited in this chapter.

For the first scenario, the platform v. platform competition, the issue is to identify relevant market power. The business models for platforms are different, some sites focus on retail, connecting sellers and purchasers for purchasing products and services, some platforms are social sites, e.g. dating sites, while others focus on general and vertical search.¹⁸³⁹ Several of the platforms and ecosystems compete intensely, while still provide a conglomerate portfolio of services. They generally, thus, compete for users and consumers limited attention span¹⁸⁴⁰, while still often being active on specific platforms service markets, as well as on downstream or aftermarkets within the ecosystem provided around their successful platforms.¹⁸⁴¹

The second scenario described above concerns ecosystem around a platforms, *inter alia* the neighbouring, downstream or aftermarkets. The thesis being that a system leader that have been able to utilize direct and indirect network effects, and restrict data flows can tip the specific platform market for consumer attention, so that consumers for the platform service turn to the system leader's platform. The system leader would then be able to control the platform with thereto connected ecosystem – the sole central arrangement in the network for scarce resources – and gain market power inside that network, to a point where the system leader becomes a 'winner takes all or most'. The platform will be the only relevant hub and GateKeeper in the ecosystem and the other sites, services and business users enclosed in the ecosystem are dependent on the platform and have a vertical relationship to the platform.

Successful platforms that have been able to tip the market for the platform service may obtain power not only in reference to the platform service market, but more importantly also in reference to the connected business users utilizing the service. Indeed, the system leader controlling the platform has gained power in the whole connected ecosystem to the point where it commands the interaction of the ecosystem. Under EU Competition Law, such ability to control whole ecosystems may trigger the special responsibility doctrine, where the dominant firm need to ensure a competitive levelled playing field

do. Nowcasting enables a firm not only to track trends in users' conduct in real time, but also to monitor trends in (potential) competitors' conduct, and to respond more quickly, which helps it push or nudge the market. Daniel L. Rubinfeld and Michal Gal, 'Access Barriers to Big Data' (2017). 59 Arizona Law Review 339. Available at SSRN: <https://ssrn.com/abstract=2830586> or <http://dx.doi.org/10.2139/ssrn.2830586>, accessed 12 December 2017.

1839 There exist several different platforms. See Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 54 et seq.

1840 Wu, Tim, Blind Spot: The Attention Economy and the Law (March 26, 2017). Antitrust Law Journal, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=2941094> or <http://dx.doi.org/10.2139/ssrn.2941094>

1841 The concept of aftermarket should be used with caution. Aftermarkets give rise to several kinds of questions under competition law. For example, does a relevant market for competitive analysis consist of separate markets for primary and secondary products, or is it a market for "systems" consisting of both primary and secondary products?

on the downstream or aftermarkets.¹⁸⁴² That the platform specific standards and rules that it selects for its platform do not impede free, undistorted and vigorous competition on connected markets without objective justification, because in essence dominant platforms have won the competition, become monopolists and are regulators of their respective ecosystems or, hence, their respective networks for scarce resources.¹⁸⁴³

Moreover, in reference to the third scenario, regarding data, it represents a new dimension for conducting competition. The amount and uniqueness of the data obtained by firms may represent power on separate data markets, while the data may still be a tool for competing and for power on levels one and two. This will be further developed below.

This chapter will deal with possible conduct that might arise to monopolisation or abuse of dominance in these scenarios, discussing, without the aim or intent of covering this area fully, the broad question what exclusionary and unfair unilateral practices¹⁸⁴⁴ are relevant in reference to data, and, hence, should be prohibited under competition law?

May preventing interoperability, access to ecosystems or IT-systems and preventing portability of data, be considered abuse or monopolisation? Should discrimination, by not creating a levelled playing field, or by not displaying similar business users, on equal term, in search results or on product/services comparison sites be an abuse? Can restricting access to data be an abuse? Several of these issues are raised in this chapter and even though there are often no clear answers, a framework or methodology will develop for how these questions may be approached.

The chapter is divided in three main parts. Firstly, shortly discussing the structure and the perception of dominance and power in the digital economy. Secondly, a more in-depth discussion regarding conducts that amount to abuses is presented and the various economic arguments succinctly presented. Thirdly, the chapter concludes with a comparative analysis of the case law and decisional practice of the BRICS competition authorities, also comparing with the way the US and the EU have dealt with these practices, also providing some broader directions to competition law enforcers in these jurisdictions.

The chapter focuses on conduct that may be considered antitrust harm, reference to economic conduct, using an evidence-based approach. While the suggested framework presented in this chapter builds on the notion that successful platforms have obtained power in their ecosystems to a point where the system leaders command, 'regulate', their respective networks, and that the threshold for abuse therefore needs to correlate to such heightened responsibilities. Implicit in this analysis is that we are also taking the view that business users (producers) sometimes need to be protected because of the effects that monopolistic platforms may have on innovation and productivity within the ecosystems connected to the platforms. Notwithstanding this, the long-term effects of

1842 The system leader can be regarded as the regulator or standard-setter for the ecosystem. Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019.

1843 See generally *ibid.*

1844 Non-price exploitative practices are examined in Chapter 8.

data collection and data analysis are not clear and the effects of individual delegating commercial decisions to intermediaries should neither be underestimated nor undervalued. A system that takes away the power to decide from individuals threatens other societal values then can be summoned under the limited notion of antitrust harm. In the end, private autonomy, the right to self-determination, is at stake, while from a consumer welfare perspective, the independent consumer, the king of the market, by delegating his right to decide, are getting less important for the competitive process. The question is whether and how this should be addressed under competition law. Traditionally, competition law protects to a certain extent variety, choice and innovation, while it is not directly protecting the personal development or independence of individuals. It is rather protecting competition to the benefit of consumers. Indeed, the development of platforms – central administrative units – making the relevant decision for the competitive process – by delegation from users and consumers – is a fundamental change of liberal economics as we know it, and beyond the aim of this chapter¹⁸⁴⁵. However, this issue is addressed in the conclusion of this report.

7.2. Dominance Based on Control and Access to Ecosystems

7.2.1. Controlling ecosystem and networks equals power under competition Law?

Under the classical methodology using relevant market and the SSNIP-test, it is difficult to identify market power in the digital economy. Among platforms, Google and Facebook have been accused of holding market power due the popularity of their respective sites/ecosystems and their advantage in data or knowledge of their users, but is that important in a future IoT setting, where the amount and quality of data might be what create market power? Or, when they are active on two or more markets (double sided markets) simultaneously? Are there double or multisided markets?¹⁸⁴⁶ Does such definition of the relevant market promote the competition law analysis?¹⁸⁴⁷ What about market power based only on the amount, quality and importance of data? Could such a set-up imply market power?¹⁸⁴⁸ In reference to establishing dominance, how do we quantify

¹⁸⁴⁵ See the analysis in Chapter 4.

¹⁸⁴⁶ David S. Evans and Michael D. Noel, 'The Analysis of Mergers that Involve Multisided Platform Businesses' (2008), 4(3) *Journal of Competition Law & Economics*, 663-695; and Lapo Filistrucchi, Damien Geradin, [Eric van Damme](#) and [Pauline Affeldt](#), 'Market Definition in Two-Sided Markets: Theory and Practice' (2014), 10(2) *Journal of Competition, Law & Economics*, 293-339.

¹⁸⁴⁷ *Ibid.* Evans, Noel and Filistrucchi et al. agree that not all digital markets are multisided. For an interesting analysis concluding that e-platforms are not multisided markets, see John Newman (2014), 'Antitrust in Zero-price Markets: Foundations', 3 et seq. https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=9504&context=penn_law_review, accessed 23 April 2018.

¹⁸⁴⁸ See Bundeskartellamt (2016). OECD, (2016) Big Data – Bringing Competition Policy to the Digital Era, 10 et seq. available at <http://www.oecd.org/daf/competition/big-data-bringing-competition-policy-to-the-digital-era.htm>.; the German and French Competition Authorities joint paper, (10 May 2016) *Competition Law and Data*, 7, 14 et seq., available at <http://www.autoritedelaconurrence.fr/doc/reportcompetitionlawanddatafinal.pdf>

data amounts? What is dominance in data, when the amount of data always grows? How does this relate to multi-homing, i.e., where many holders have similar data? Moreover, the data held can perhaps be duplicated without unreasonable effort. Thus, data may be difficult to monopolize, with few truly unique datasets.¹⁸⁴⁹

Indeed, establishing market power in reference to the digital economy raises many questions. The identification of dominance should also take into consideration the direct and indirect network effects, network externalities, advantage in data and the high risk of market tip to the favour of one firm. On the other hand, firms who have gained a 'winner takes most' position may still fall foul of a 'death spiral' where they lose both consumer and business users, breaking down the network because groups on either side of the platforms are triggering each other. However, such break down would be based on some kind of collective and transparent decision of at least substantial group users of one side of the network to leave the network, a collective action that seems to be rare, and difficult to organise. High quality data and better usability (predictive modelling tools), combined with a data-driven business model, may also quickly create and sustain dominance or even a monopoly positions since the system leader would be more informed of the needs of the users of the platform.¹⁸⁵⁰

Given the dichotomy described above, there seem to be indications that system leaders may have power to control their ecosystems. However, do they hold market power? Generally, given the methodology applied above – to divide the digital economy in three levels – would imply that at the first level, inter platform competition, platform market power should be identified in the relationship with other platforms. This might however pose a problem since the platforms that we know seem to be very different. Amazon, Google and Facebook are providing different services. Some scholars are suggesting that they are indeed not so different and are competing on a general attention market.¹⁸⁵¹ They are fighting for our eyes and interests. How much attention do users give certain platforms and ecosystems in reference to other forms of media and intermediates? Can market power be identified based on the time spent on a platform in relation to other platforms? Can users be locked-in to certain ecosystems and spend most their attention to them? Can we identify and suggest market power based on the level of attention a media is gaining? Or, do we still need to identify 'markets'. In the few cases Competition Authorities have scrutinized the digital economy, the courts seem to in-

1849 D. Daniel Sokol and Roisin E. Comerford, *Does Antitrust Have a Role to Play in Regulating Big Data?*, forthcoming in *Cambridge Handbook of Antitrust, Intellectual Property and High Tech* (Cambridge University Press, 2017) http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2723693 accessed 23 November 2016.

1850 Jens Prüfer and C. Schottmüller, 'Competing with Big Data' (CentER Discussion Paper; Vol. 2017-007), Tilburg: CentER, Center for Economic Research. See also the CASE AT.39740 Google Search (Shopping), 27 June 2017 and European Commission, Commission Staff Working Document Impact Assessment, Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on a framework for the free flow of non-personal data in the European Union, SWD/2017/0304 final – 2017/0228 (COD), Brussels, 13 September 2017 (Impact Assessment); Commission Staff Working Document on the free flow of data and emerging issues of the European data economy, COM(2017) 9 Final, 10 January 2017.

1851 Tim Wu, (2017) *Blind Spot: The Attention Economy and the Law*. *Antitrust Law Journal*, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=2941094> or <http://dx.doi.org/10.2139/ssrn.2941094>.

stead find the platform service provided and even though being free of charge, identify this as a relevant market. See for example the *Google* cases, identifying general search as a relevant market.¹⁸⁵²

There is – on top of this – a general attention market where the platforms compete, irrespective the different services they provide, and where neither platform could be considered having a monopoly or a dominant position. However, even though acknowledging that there is a general attention market should not blur the conclusion that the service provided by the platforms respectively (often generally providing interoperability between business user and customers), may still be a service the respective platform monopolises.

At the second level, inter ecosystem competition, competition law doctrines such as an updated version of aftermarket could imply the identification of monopoly power and dominance within ecosystems, even though dominance cannot be identified at the first level.¹⁸⁵³ The core activities of the platforms and the theories of network effect, learning effects and the ease that certain services ‘tip’ need also to be taken into consideration both for inter and intra ecosystem competition. The doctrine of aftermarket is controversial and need to be developed. The theory of path dependency could be utilized to show that both purchasers and business users of ecosystems may over time become dependent and locked-in to certain networks, making the ecosystem or network the relevant arena for judging whether the system leaders holds power, or not. Indeed, the initial decision in favour of one ecosystem means that a large number of follow-on decisions is de facto already taken and no competition exists on this level. This concerns all products within the ecosystem, from apps to further devices, to Internet services. For these parts, products and services, the influence of users is reduced to a minimum. The initial buying situation comes at the cost of high path dependency for all further individual decisions. Institutional economics characterise such situations as situations of path dependence.¹⁸⁵⁴

With the current large platforms, as well as with Industrial Internet and with Internet of Things, it may be common that data will be collected and stored with the system leaders in the relevant Internet ecosystem. That the systems leader has entered into vertical agreements with business users in its ecosystems. The aim of these vertical agreements may vary, but generally is benign business contracts, while an ancillary restraint may be

1852 Case AT.39740 *Google Search* (Shopping), 27 June 2017.

1853 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, (2019) ‘Competition policy for the digital era’, Final report. See also *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992). For the EU see the *Hugin* case, *Hugin Kassaregister AB and Hugin Cash Registers Ltd v EU Commission*, Case 22/78, ECLI:EU:C:1979:138.

1854 Cf. Douglass C. North, ‘Economic Performance Through Time’. (1994) *American Economic Review* 84(359); Stan Liebowitz and Stephen E Margolis, ‘Path Dependence, Lock-In, and History’ (1995) *Journal of Law, Economics and Organization* 11(205); Leonhard Dobusch and Elke Schüßler *Theorizing path dependence: a review of positive feedback mechanisms in technology markets, regional clusters and organizations*, (2013) *Industrial and Corporate Change* 22(617). See also Rupprecht Podszun, ‘Innovation, Variety & Fair Choice – New Rules for the Digital Economy: Expert Opinion for Finanzplatz München Initiative’ (FPMI 2017) available at SSRN: <https://ssrn.com/abstract=3243403> or <http://dx.doi.org/10.2139/ssrn.3243403> accessed 19 July 2019.

that the data or traffic produced by the business users in the system are shared or even exclusively belongs to the system leader. It seems moreover that the system leader use or give access to the data to firms that competet with the business users that generated the data in the first place. It thus use or gives access to user data to third parties arbitrary or in a discriminating fashion, even vis-à-vis the user.¹⁸⁵⁵

Notwithstanding the above, it is increasingly acknowledged that controlling data is key in the ability of firms to gain and hold market power.¹⁸⁵⁶ Access to and instant control of vast amounts of data¹⁸⁵⁷ creates competitive advantages for firms. The firm having the best and most timely access and control over the largest and best data-sets should be able to utilize this to learn about the market and customers, personalize products and gain a leading market position.¹⁸⁵⁸

In the current stage of development of the digital society, platforms are the main collectors of data, while also being bottlenecks and central administrative units in the networks they create. The system leaders are able to detach the direct customer – supplier interface, which is replaced by the intermediate, the platform. That imply that the platform not only acts as a retail service, it also collects and transfer commercial data regarding purchasers, products and suppliers.

1855 Björn Lundqvist, "Cloud service as the Ultimate Gate(keeper)", *Journal of Antitrust Enforcement* (2019), available at <https://academic.oup.com/antitrust/advance-article-abstract/doi/10.1093/jaenfo/jny013/5303705> accessed 13 July 2019.

1856 For example, the German Competition Act has been amended in 2017 stating that "access to relevant data is a potential source of market power". See also, e.g., Wolfgang Kerber, 'Digital Markets, Data, and Privacy: Competition Law, Consumer Law, and Data Protection' (2016) *Gewerblicher Rechtsschutz und Urheberrecht. Internationaler Teil* 639-647 <<http://dx.doi.org/10.2139/ssrn.2770479>> accessed 13 July 2018. There are several authors who purport that holding big data does not equate to market power. See e.g. Giuseppe Colangelo and Mariateresa Maggiolino, 'Big Data as Misleading Facilities' (2 June 2017) *Bocconi Legal Studies Research Paper No. 2978465* <<http://dx.doi.org/10.2139/ssrn.2978465>> accessed 13 July 2018. Generally, they argue that big data does not create a significant barrier to entry and they base their claims, inter alia, on the non-exclusive and non-rivalrous nature of data and a claimed ease of collecting it, while disregarding many potential entry barriers. Other scholars argue that the harm created by big data pertains mainly to privacy. Yet, these conclusions are based on the limited existing economic studies on big data, which often focus on one specific market (most commonly on search engines or personal data markets). See e.g. Daniel L Rubinfeld and Michal S Gal, 'Access Barriers to Big Data' (2017) 59 *Arizona Law Review* 339 <<http://dx.doi.org/10.2139/ssrn.2830586>> accessed 13 July 2018; Darren S Tucker and Hill B Wellford, 'Big Mistakes Regarding Big Data' (2014) 6 *Antitrust Source* 10; Maureen K Ohlhausen and Alexander P Okuliar, 'Competition, Consumer Protection, And the Right [Approach] To Privacy' (2015) 80 *Antitrust Law Journal* 121; James C Cooper, 'Privacy and Antitrust: Underpants Gnomes, the First Amendment, and Subjectivity', (2013) 20 *George Mason Law Review* 1129.

1857 There is a discussion regarding the definition of "data": does it encompass syntactic information, semantic information, or both; and where should one draw the line in reference to protecting "data"? See Josef Drexler, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access' (31 October 2016) 16-13 *Max Planck Institute for Innovation & Competition Research Paper 12 ff* <<http://dx.doi.org/10.2139/ssrn.2862975>> accessed 13 July 2019; Andreas Wiebe, 'Protection of industrial data – a new property right for the digital economy?' (2017) 12(1) *Journal of Intellectual Property Law & Practice* 67 <<https://doi.org/10.1093/jiplp/jpw175>> accessed 13 July 2019.

1858 Michael E. Prescott, *Big Data: Innovation & Competitive Advantage in an Information Media Analytics Company*, 4(1) *J. of Innovation Management* 92, 96-7 (2016); Maurice E. Stucke & Allen P. Grunes, *Big Data & Competition Policy* 89 (2016) at 183.

Secondly, the platforms provide, and will increasingly provide, an appreciated service since they to a high degree gain the trust to conduct or simplify the purchasing decisions for consumers. Purchasers abdicating the need to stay informed by handing over the relevant personal and non-personal data to intermediates to narrow the business decisions for them. The platforms will in the end hold the information and knowledge relevant to make the best informed decisions, and will be able to make connection not visible at first.

With the advance of the Internet of things (IoT), the amount of data that will be collected will increase immensely, also in industries that previously were not digital. Regular brick-and-mortar industry is likely to start including data-collecting sensors in the production of new products and within the products, and will, hence, become data collectors. The collected data will either be generated by the users of these products or devices, or by other devices when IoT components will start communicating with each other.

Further, future product markets will face a paradigm shift when data is included in the value chain.¹⁸⁵⁹ The vast amounts of collected data will influence the way the products are designed and developed, increase product quality, which in turn should generate best-matched products to buyers' expectations, as revealed by the data.¹⁸⁶⁰

This could alter old economy markets to focus even more intensively on demand features. Product cycles shorten. To a greater extent, businesses must have the resources to produce flexibly in real time. Survival may depend on this type of efficiency.¹⁸⁶¹

It is further feasible, that old oligopolistic markets will be transformed when one firm win the data-driven competition ('winner takes most') and become the system leader of specific systems, eg smart kitchens, vehicles. Indeed, the suppliers of individual devices to the systems, eg. the smart kitchen, may be excluded and degraded to suppliers or unequal partners of the system leader controlling the main platform.

However, the underlying forces of network effect and tipping may be controlled should the data in an ecosystem be free and accessible for all – like an open access of standard approach. Competition may increase since all members of the network ecosystem have access to the same data, and, in theory, become something akin to potential competitors. However, there are few if any relevant initiatives for creating such 'data commons', where data is freely accessible and open for all.

The services provided by Amazon, Google and other platforms, e.g., transaction site, cloud services, may constitute an example of the problem of few platforms controlling data and possibly gaining market power due to data-driven business model. It is not un-

1859 Ibid. See also OECD, 'Big Data – Bringing Competition Policy to the Digital Era' (2016) <<http://www.oecd.org/daf/competition/big-data-bringing-competition-policy-to-the-digital-era.htm>> accessed 13 July 2018; Autorité de la Concurrence and Bundeskartellamt, 'Competition Law and Data' (2016) <<http://www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf>> accessed 13 July 2018, 7, 10 ff.

1860 Daniel L Rubinfeld and Michal S Gal, 'Access Barriers to Big Data' (2017) 59 Arizona Law Review 339, 356 et seq, with references. <<http://dx.doi.org/10.2139/ssrn.2830586>> accessed 13 July 2018.

1861 Richard Cuthbertson, Peder Inge Furseth & Stephen J. Ezell, *Innovating in a Service-Driven Economy* 136-7 (2015), at 132-33.

common that Amazon, Google and other platforms have access to most, if not all, data in their respective ecosystems, while the business users in each ecosystem have limited access to data generated by them in the ecosystem. Moreover, the platform providers can have an advantage in controlling the best analytics tools. The platform providers may through their services and the collection of data on dominant platforms hold the knowledge of several industries, and with this advantage in data, they can eventually understand and learn users' markets, even though not being an active member of those markets. This may lead the system leaders to vertically integrate and with the use of data-driven business models take over regular brick-and-mortar markets, such as the markets for kitchens or cars.

A critical question is whether being a system leader and obtaining data from several participants in a market could amount to holding system market power, while not being active on those markets. Could control of data flows correspond to market power in the ecosystem and thereto connected markets.¹⁸⁶² For example, could a system leader having access to data from the majority of the firms active on a downstream market, be considered dominant in the upstream data market or on the product market?

The current probe by the EU Commission and the recently closed probe by the German Bundeskartellamt of Amazon address issues similar to what have been described above. According to Competition Commissioner Vestager, DG Comp opened a probe into Amazon's use of data on its third-party merchants. The idea was to assess the dual role of the e-commerce giant, given that it hosts but also competes against these other merchants. There are concerns that Amazon could be using sensitive information about its competitors' products to its own advantage.¹⁸⁶³

The German probe investigated supplemented the probe by the EU Commission, and the German Competition Authority analysed whether Amazon's terms and conditions were anticompetitively restricting business users. According to the terms and conditions, business users needed, for example, to assign right to use the information material which a seller has to provide with regarding to the products offered on pan-European despatch.¹⁸⁶⁴ Interestingly, the German Competition Authority indicated in reference to the issue of dominance that, "a necessary criterion for the relevance of this conduct under competition law is that Amazon holds a dominant position or that the sellers are dependent on Amazon. There are indications of both, in particular on a possible

1862 See the US Kodak case, *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992), where the Court held that even though an equipment manufacturer lacked significant market power in the primary market for its equipment—copier-duplicators and other imaging equipment—nonetheless, it could have sufficient market power in the secondary aftermarket for repair parts to be liable under the antitrust laws for its exclusionary conduct in the aftermarket. For the EU see the Hugin case, *Hugin Kassaregister AB and Hugin Cash Registers Ltd v EU Commission*, Case 22/78, ECLI:EU:C:1979:138.

1863 See EU Commission Press Release Antitrust: Commission opens investigation into possible anti-competitive conduct of Amazon, 17 July 2019 available at http://europa.eu/rapid/press-release_IP-19-4291_en.htm accessed 17 July 2019. Cf. https://ec.europa.eu/commission/presscorner/detail/en/ip_19_4291 and

1864 See the German Competition Authorities press release: https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html?nn=3591568.

market for marketplace services for online sales to consumers. This will be examined in closer detail by the Bundeskartellamt.” Thus, the German Competition Authority finds indication both for dominant position and – even though such dominance will not be identified – the business users using Amazon may still be so dependent of Amazon that in reference to their business relationship, Amazon may still hold bargaining power vis-à-vis the individual business users to the level where the German Competition law may be triggered. The German Competition Authority seemed here to stress that system leaders within their ecosystem may be considered powerful enough to trigger a German competition law violation, even though not being dominant on general (platform) service markets. In our methodology presented above, that would indicate that system leaders can be ‘dominant’ on level two (intra ecosystem) without being dominant inter ecosystem (level one). As will be discussed below, the German Competition Authority decided to close its investigation after Amazon agreed to change its terms and conditions.

Another set of important questions relate to whether the platform provider could be considered dominant on a non-market related innovation space for the future development of several products and services, i.e., being able to chill innovation incentives more generally.¹⁸⁶⁵

Interestingly, being the hub for data in its ecosystem, is a very advantageous position, also in reference of developing new innovation. Collecting data and making use of data analytics could be viewed as research and development, which is what large system leaders and platforms seem to be doing. These set-ups may be common. A system leader claims a right to access all data from business users. In reference to Internet of Things, for example, producers of different devices, e.g., different parts of a powertrain for a ship (parts that are all connected to IoT 24/7 and collect data), are forced to give the system leader advantage knowledge in reference to the data. The system leader gains data from the whole ecosystem making up the powering of the boat. That will enable the system leader to innovate in reference to the power of the boat, while parts producer will be left behind.

We can see the trend in reference to the known tech giants. It is not uncommon that Amazon, Google and other gatekeepers have access to most data in their respective ecosystems, even though users in each ecosystem have access mainly to parts of their own generated data.¹⁸⁶⁶ Moreover, Uber and some other e-ecosystems have a business idea where the system leader collects exclusively the data generated by their users business (the drivers), while the drivers do not have a right to port the data from their customers should they wish to exit the Uber system.¹⁸⁶⁷ Indeed, access and control of data could reflect market power.

1865 Se generally interesting discussion regarding research markets and competition in EUR. COMM’N, Case M.7932, Dow/DuPont, Decision C (2017), http://ec.europa.eu/competition/mergers/cases/decisions/m7932_13668_3.pdf (hereinafter, Dow/DuPont)

1866 Khan, “Amazon’s Antitrust Paradox”, 126 Yale L.J. (2016)

1867 Ibid. The EU Commission has recognised this problem in the proposed platform to business regulation (P2B) stipulates a rule that a platform provider must be transparent with the data it collects from its business users and if it intends to limit access to business users and give access to that data to its business users in a discriminating fashion. it needs to inform its business users, be transparent, about its business in-

Finally, it should be emphasised that algorithms and data analytics could be the bottleneck in the digital economy, rather than access to large data-sets¹⁸⁶⁸. It seems clear that for example some algorithms used and developed are better or rather outstanding compared to other software, and that data analytics connected to nowcasting could be the relevant competitive tool for the future. Indeed, the firm holding the best algorithms will be holding market power rather than the firm holding the best and largest dataset. However, before focusing on algorithms and IT infrastructure, the issue of data and dominance need to be further discussed.

7.2.2. What is data?¹⁸⁶⁹

Data could increase the network and learning effects, and be part of the dominance analysis, while data still also can be a separate third level where power can be identified. Firms controlling data flows from several sources connected to the same market, may have some degree of control and power on these markets and system leaders have power controlling data in the ecosystem.

Data, information or knowledge are often used interchangeably; however information becomes data when being digitalised or coded in some form suitable for better usage or machine processing. While the concept of data has historically been associated with scientific research, data are today collected by a huge range of organizations and institutions, including businesses (e.g., marketing, sales data, revenue, profits), governments (e.g., addresses, personal identification numbers, company registration data, unemployment data) and now sites and platforms on the Internet. The concept of data was explored in more detail at Chapter 4. Here we focus on some aspects that merit attention in the context of an abuse of a dominant position.

Raw data (“unprocessed data”) is a collection of digitised information before it has been “cleaned” and corrected. Data processing commonly occurs by stages, and the “processed data” from one stage may be considered the “raw data” of the next stage. Indeed, firms often want raw data, rather than processed data, to be utilized and processed for their business

A subgroup of data is personal data. A definition of personal data exists in jurisdictions where privacy and personal autonomy in reference to the digital society is protected. Generally, the definition of ‘personal data’ is broad. Any information relating to an identified or identifiable natural person (‘data subject’) should be considered personal data. The definition of personal data is wide since also information that is non-personal might indirectly in combination with other information identify a natural person and become

tent. European Commission, Fairness in platform-to-business relations, Ref. Ares(2017)5222469 – 25/10/2017. A District Judge in San Francisco recently found that by classifying drivers as independent contractors instead of employees, Uber significantly harmed competition under California state law. Daniel Wiessner, Uber’s classification of drivers may violate Calif. Antitrust law – judge, Reuters (21 June 2019).

1868 See the analysis in Chapter 4.

1869 For a more in-depth typology of data, from an access perspective, cf. chapter 3 *supra*.

personal data. Thus, non-personal, even raw or meta data, can in combination with other data become personal data under the definition.¹⁸⁷⁰

Up-to-date and relevant personal data may become the relevant competitive tool in several industries and markets. Access to relevant datasets may furthermore be indispensable to be able gain entry for firms wanting to access new markets and ecosystems. Access under general competition law – or sector specific competition law may be hindered if the holder of the personal data perceives it will violate data protection rules, should it sell, or be obliged to give access to firms. Indeed, data protection rules may work as barrier to entry, while competition law may oblige dominant data holders to transfer or give access to relevant datasets. Certain cases from national competition authorities in the EU have faced this dilemma. Where access to personal data was required, the UK and French competition authorities have solved this by ordering data access on an opt-out basis after taking advice from their respective data protection authorities.¹⁸⁷¹

Sometimes, a third option may be expedient and preferable, namely the implementation of technical tools that enable anonymous use of bundled individual data. It is therefore recommended that firms collecting data, even only meta data or aggregated data, even in an industrial internet setting, do take data protection rules in consideration. Indeed, it can be wise to calibrate the collection mechanism, in for example an industrial internet setting, so to be able to transfer non-personal data and to keep such data sets intact. It should be acknowledged that for competition to strive on the basis data and commercial use of data, the amount of data considered to be personal data cannot be excessive. Indeed, the definition of personal data should not be too wide, and when defining personal data, protection competition and rivalry need to be an necessary objective to take into consideration.

In the EU report on competition policy for the digital era, data is divided into four categories of uses: non-anonymous use of individual-level data, anonymous use of individual level data, aggregated data, and contextual data. Interestingly, the authors of the report seem to argue that anonymous use of individual level data is non-personal data and not a violation of the EU rules regarding data protection.¹⁸⁷² This is a practical approach that could be of value also for BRICS countries. The data are disconnected from any right on the behalf of the data subject.¹⁸⁷³

1870 Jacques Cr  mer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 104.

1871 Ibid. See the French competition authority's interim measures decision no. 14-MC-02, of 9 September 2014, concerning Engie, at paras. 289 and 293-294; and the UK CMA's Final Report on its Energy Market Investigation, dated 24 June 2016, at para. 233 of the summary, and in more detail in paras. 11.64 to 11.66. In other cases, access to data for specified purposes and specified acts of processing may be mandated by a competition authority based on an interest balancing (Article 6 lit. f GDPR) or based on Article 6 lit. e GDPR which, inter alia, allows processing that is necessary for the performance of a task carried out in the public interest. See Jacques Cr  mer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 104.

1872 Jacques Cr  mer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 25 et seq, see specific 26 fn. 27.

1873 Jacques Cr  mer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019.

7.2.3. The blurring of data and physical: Data and the Internet of Things (IoT)

The internet of things (IoT) will develop during the next decade. It will connect devices digitally, and the link itself will create new functions. The real value in such markets will derive from collecting and evaluating data, however.¹⁸⁷⁴ Competition authorities will need to look for market power in systems, in which data will form a critical input, in addition to downstream product markets.

IoT systems present double-multisided markets. Data, advertising, identifying and anticipating preferences, purchasing, and nudging will function on one side of the platform. Sensors in products will enable this business model and create new product features on the other side of the platform.

Notwithstanding a symbiosis between the markets, they display distinct functions. Neither the producers of the devices nor the platform operator necessarily must conduct, or would be most skilled at conducting, data analytics. The platform will have an innate advantage in this task, or the sole right to it, because the platform collects the data centrally. Many different algorithms might best utilize that data for a given purpose. This generates gradations to the vertical relationship. The system bundles the function of a product, the joint functioning of products, data collection, and data analytics.

Closed systems, such as Apple, might require that consumers buy certain products. Yet Apple will operate at a disadvantage in this market, because open systems, offering sensors to all products, will collect more data and make more money. The freedom to refuse to deal with IoT systems may restrain their market power. The lure of a data set that best constitutes consumer preferences may coerce to an extent that approaches forcing.

The best indicator to this goldmine, if not an infallible one, is a record of what consumers have bought previously. E-commerce, search, and payments offer the most logical current vault for demand data. A few platforms, led by Amazon and Google, already have built such a data set.

The IoT will offer a different type of data. Instead of demonstrating what customers buy, it will show how customers use products. Data analytics will permit the system to offer to refill or substitute products before customers think to go shopping.¹⁸⁷⁵ Where dominant, the systems can exert tremendous control over purchases.

7.2.4. No one Owns Data

The data, the information (as such), irrespectively how private and how valuable, is not covered by property right in any jurisdiction.¹⁸⁷⁶ No one owns personal data, while still

1874 Maurice E. Stucke & Allen P. Grunes, *Big Data & Competition Policy* 89 (2016).

1875 Lynn Wu & Erik Brynjolfsson, *The Future of Prediction: How Google Searches Foreshadow Housing Prices and Sales* 89, in *Economic Analysis of the Digital Economy* (Goldfarb, A., Greenstein, S.M., Tucker, C.E., eds. 2015); Richard Cuthbertson, Peder Inge Furseth & Stephen J. Ezell, *Innovating in a Service-Driven Economy* 136-7 (2015).

1876 Josef Drexler, "Data Access and Control in the Era of Connected Devices – Study on Behalf of the European Consumer Organisation BEUC", 2018. There are authors that propose the recognition of ownership rights for consumers over

the 'data subject' may in certain jurisdictions hold some rights to the data.¹⁸⁷⁷

Notwithstanding this, if individual data points fulfils the requirement for an intellectual property right, e.g. copyright, it can be covered by copyright (3rd party copyright, or copyright held by firm that is also gate keeper to accessing the data in the server).

Whether the data may be covered by rules regarding trade secrets have up until recently been regulated very differently in the different countries.¹⁸⁷⁸ However, for example, in the EU, the regulatory landscape for trade secrets is dramatically changing with the introduction of harmonised rules based on Directive 2016/943/EU of 8 June 2016 on the protection of trade secrets. It is probable that non-personal and personal data may be protected under the rules in the directive. Individual data points might not constitute a trade secret, but the combination of data points or information (that as such is not publicly available), in a relevant data set, might well be considered a trade secret with commercial value.¹⁸⁷⁹

Moreover, in reference to data, the jurisdictions protecting databases (*sui generis* database rights), as for example Russia, may hence protect datasets or databases if the specific rules for such protection is fulfilled. Public and private entities that collect personal or non-personal data in databases might, thus, also fulfil the requirements for obtaining database *sui generis* protection, if the holder of the database has made a large investment in the creation of the database.¹⁸⁸⁰ According to the EU Commission, subject to exceptions, use by others (e.g., extraction of the content, reproduction or re-utilisation of the database) can be prevented by the database author or maker, but only to the extent that either its database in its entirety or substantial parts thereof are concerned, cf. article 7(1), or when others seek to use insubstantial parts of the database in a "repeated and systematic" manner, cf. article 7(5). The EU Commission concludes – in reference to the digital economy – that the protection offered does not apply to machine-generated

the data they produce: Chris Jay Hoofnagle and Jan Whittington, (2014), Free: Accounting for the Costs of the Internet's Most Popular Price, UCLA Law Review, Vol. 61, 606-670. available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2235962.

1877 In the EU, there some rights connected to personal data in Articles 18-20 of the General Data Protection regulation, such as right to have data corrected, "right to be forgotten" and data portability. In reference to data portability, the right is however limited making it less attractive to change social website for consumers. Cf. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance) OJ L 119, 4.5.2016, p. 1–88.

1878 Sweden is one of few states that have enacted a specific Act for the protection trade secrets, while, for example, trade secrets in the UK and in Denmark have been protected under case law and the marketing law (unfair competition law), respectively. In Sweden, collections of customer data, e.g. addresses, have been protected under the Trade Secret Act.

1879 See Josef Drexler, et al, (16 August 2016), Data ownership and access to data position statement of the Max Planck Institute for Innovation and Competition, Max Planck Institute for Innovation and Competition Research Paper No. 16-10, p. 6 et seq.

1880 British Horseracing Board, C-203/02 ECLI:EU:C:2004:128, para, 30 et seq. See also Drexler, "Designing Competitive Markets for Industrial Data – Between Propertisation and Access" (October 31, 2016). Max Planck Institute for Innovation & Competition Research Paper, No. 16-13, 21. Available at SSRN: <https://ssrn.com/abstract=2862975> or <http://dx.doi.org/10.2139/ssrn.2862975>.

data, while a certain amount of data needs to have been used for an infringement to be at hand.¹⁸⁸¹

In reference to data analytics, it is clear that data analytics contained in a software, or a algorithm contained in a software well can fulfil the rules for intellectual property rights protection. In the EU the software directive is applicable, while in the US copyright protection may be available.

From the general, brief, analysis above, even though possibly being a great source or wealth for the future, it is rather clear that data, be it big or open, personal or not, is not directly covered by any (intellectual) legal property system, while the data are kept confidential, apart and controlled under the platforms. Since data – generally – is not covered by a property right, legitimate access implies a right to commercial use the data.¹⁸⁸²

It is clear that in several jurisdictions the question of enacting a property right to data or data-sets, somewhat similar to the database directive in the EU, is discussed. In China and Russia such discussion have been initiated, and in India a proposition has been made in its draft National e-Commerce Policy (yet to be finalised) that data originating from conduct of the Indian citizens belong to India. A property right to data may reveal hidden values and assets.

7.2.5. Unique Data Sets and Competition Law

With the development of IoT, data have begun to grow at an explosive rate. Social changes have come to the fore and the concept of “big data” has emerged. Big data is not only an information asset with large data scale and diverse data types, but also a digital technology that specializes in data flow, management and value analysis. Its attributes are embodied in resource and technology. The strategic planning department of China defines big data from the perspective of top-level design: “Big data is a data set characterized by Volume, Variety, Velocity and Value (4V). At the present, large quantities of fragmented data of various formats are being collected, stored and correlation analysis of them are being conducted. Naturally, a new generation of information technology and service models are coming into being that can discover new knowledge, create new value and enhance new capabilities.”¹⁸⁸³ In order to avoid the text ambiguity caused by the mix of resource attributes and technical attributes of big data, this paper refers to the “data set” as a competitive factor with asset attributes in the big data market.

1881 Commission Staff Working Document on the free flow of data and emerging issues of the European data economy, COM(2017) 9 Final, 10.1.2017, 20.

1882 See discussion *infra* regarding the interesting Chinese case *Maimai v. Sina* regarding whether non-legitimate accessing of data using an API may amount to a violation of unfair competition rules. Cf. <http://bjgy.chinacourt.gov.cn/article/detail/2017/04/id/2820264.shtml>

1883 China Government Network: Notice of the State Council on Printing and Distributing the Action Plan for Promoting Big Data Development (Guo Fa [2015] No. 50), http://www.gov.cn/zhengce/content/2015-09/05/content_10137.htm, last access date: February 15, 2018.

Data is ubiquitous, and almost all Internet behaviors produce corresponding data, but a single data type will not create any value. Only data sets that extract the value of information can reflect the market value of data as a production factor and a competitive resource. A data set is a relative concept. There is no specific measurement standard in quality or quantity. Its types include structured data that strictly follows the data formats and length specifications, as well as non-structured data such as files, images, geographic location trajectories, and personal choices and preferences.

Unique data sets have an important impact on market competition. First, data sets can be converted into transaction targets with exchange value after the process of definition, desensitization, information extraction, and value analysis. As a competitive product, this kind of information asset can bring direct product benefits and market advantages to entities that possess data. Second, dynamic, real-time data sets, coupled with algorithmic analysis techniques, help companies analyze market trends and identify consumer needs, thus gain unique competitive advantages in the relevant product markets. Third, if the type, scale and scope of a data set held by a company reach such a level that is impossible for the competitors to copy or surpass, then the market dominance of the company may have been formed and even will be strengthened. In this case, the company may gain a competitive advantage in upstream and downstream markets.¹⁸⁸⁴

It is precisely because of the special market advantages and competition effects brought by data sets that many companies increase their economic and resource input and strive to improve data collection capabilities and processing technologies. In the case of “Sina Weibo v. Maimai”, which is dubbed “the No. 1 case in the field of big data in China”, the Beijing Intellectual Property Court clearly pointed out that companies, pursuant to contract law and unfair competition law, may enjoy the exclusive right of the data which they have put in efforts and resources to collect. Therefore, others need to have legitimate access to the data and may not grab and use the data without permission and authorization.¹⁸⁸⁵

7.2.6. The Governance of Cloud and Market Power

In the context of digital economic development, data-driven companies have to deal with massive amounts of data generated by multiple channels at a rapid rate. The more data they mine, the greater pressure on their storage space, central processing units and algorithms. The increased basic inputs pose great challenges to the company’s capital base and technical capabilities. Virtualization technology has led to the birth of “cloud computing”. More and more businesses no longer use their own computer equipment but store and process data on a cloud computer platform provided by a third party.¹⁸⁸⁶

“Cloud” refers to integrated remote and information storage services. Information and

1884 Zhan Yujing, Wang Xianlin: “A Preliminary Study of Big Data Issues from the Perspective of Anti-monopoly”, in *Price Theory and Practice*, 2018, No. 9, p. 37.

1885 Beijing Intellectual Property Court (2016) Beijing 73 Minzhong No. 588 Civil Judgment.

1886 Gao Fuping: “Legal Issues and Countermeasures for Cloud Computing”, in *Law Journal*, No. 6, 2012, p. 7.

data generated, created and stored in the process of using cloud services are saved and kept in servers of cloud service providers who act as third-party data centers. The data kept in the cloud belong to the companies, but the cloud service provider has de facto control over the data, which has caused a concern in competition law. Does the governance of the cloud become a source of market power?

The key to the analysis of this problem lies in clarifying the role and positioning of the “cloud” – thinking about in what form the data exists, what role the cloud plays along the data value chain, and who owns or controls the cloud on the data.

(1) “Cloud” exists as a vehicle of data generation or capture. In this particular context, the cloud service provider is the main driver of data generation and thus the controller of the data. For example, the basic registration information is collected from the company customer for the specific needs of providing the service, or the product usage data and the daily operation behavior data are collected for the optimization and improvement of the product after obtaining the authorization of the company. At this point, the cloud service provider has exclusive control and dominance over the specific data sets it gathers. When these data sets constitute a critical input in the relevant market--difficult for others to replicate or substitute---, these can bring a competitive advantage to the cloud service provider. Under the circumstance of big data age, the control over the “cloud” helps operators obtain different types of data sets from different corporate customers to form differentiated data aggregates, thereby increasing the threshold for market entry or expansion of existing or potential competitors. Market barriers further while strengthening the market power of operators.

(2) “Cloud” exists as a data storage or warehousing center. The company simply delegates its data to the cloud data center based on the limited purpose of storing or expanding capacity, and the ownership and control of the data remains attributable to the company itself. Although cloud service providers have access to data, their use of data is strictly limited by the scope of corporate customer authorization. In this situation, the “cloud” is only the data storage space in the physical sense. The cloud service provider does not control the corporate data outside of the specific authorization, and in this sense its control does not bring new data assets to it.¹⁸⁸⁷

(3) “Cloud” exists as a data processing and analysis platform. Although it is not possible to directly use the data assets stored by enterprises to gain a competitive advantage, with the technology development and function expansion of the intelligent cloud platform, the providers can also enjoy positive market feedback brought by large-scale data streams. With the maturity of machine learning and artificial intelligence, many providers have begun to integrate databases and analytics engines into cloud platforms to provide enterprises with deeper value mining and business analytics services. In order to get a more intelligent solution, companies must authorize cloud service providers to access and control their own data in order to integrate external data and update solutions in real time. Continuous data feedback support, coupled with optimized algo-

1887 See Greg Sivinski, Alex Okuliar and Lars Kjolbye. “Is big data a big deal? A competition law approach to big data”, European Competition Journal, vol.13, 2017, p.207.

rithms and machine learning, cloud services can better cater for enterprise needs, and even lead companies to trying new products.¹⁸⁸⁸

From different perspectives, the market power of “cloud” may vary in evaluation and measurement, but the meaning in competition law embodied in the “cloud” is far more than that. To some extent, the generation of “Cloud” can solve the problem of high amount cost of early input in data infrastructure. Cloud service providers convert these fixed costs into variable costs¹⁸⁸⁹ that small companies can afford, so that more corporations can get themselves involved into the wave of the digital economy.

As one of the forms of the Internet platform, “cloud” has typical characteristics such as multilateral market, dynamic competition and network effect. Due to the growing relevance and interconnectedness between platform users and data, the possibility for users to replace their provider is gradually reduced, and barriers to entry are increasing. For a fairly large cloud platform, as its users increase, the size of data will grow larger, the higher the users’ viscosity will move, and less likely its customers will leave them.¹⁸⁹⁰ As more and more customers rely on a small number of cloud service platforms, potential competitors will not be able to establish a strong enough data infrastructure, and it will be difficult for them to enter the market or compete with the existing operators. The cloud data market will slowly develop into an oligopoly.¹⁸⁹¹ Benefiting from the effect of economies of scale and economies of scope brought by cloud big data, the governance of “cloud” will bring incomprehensible competitive advantage and market power to market players.¹⁸⁹²

It is foreseeable that in the near future, BRICS competition authorities of law enforcement will focus on the competition law enforcement in the digital economy, especially the enforcement to the operators in the field of cloud services. Based on evaluating market power, the authorities will carefully examine different dimensions of operators’ participation in data-related market competition.

1888 See Chen Bing, “The Competitive Law Attributes and Regulatory Significance of Big Data,” in *Law Science*, No. 8, 2018, p. 112.

1889 OECD, “Big Data: Bringing Competition Policy to the Digital Era”, Nov. 2016, available at <http://www.oecd.org/competition/big-data-bringing-competition-policy-to-the-digital-era.htm>

1890 Cao Yang: “Identification and Regulation of Internet Dominance in the Perspective of Data”, in *Electronic Intellectual Property*, No. 10, 2018, p. 94.

1891 According to China’s 2018 cloud computing enterprise rankings, the top three companies currently leading China’s cloud computing market are Alibaba (Alibaba Cloud), China Telecom (Tianyi Cloud) and Tencent (Tencent Cloud), and the lead is still With continuous expansion, the three companies account for nearly 70% of the market share in China’s cloud computing market. For details, please refer to: “Top 50 of Cloud Computing Enterprises in 2018”, <http://top.askci.com/news/20181022/1756231134823.shtml>, last access date: February 15, 2019.

1892 Björn Lundqvist; Cloud services as the ultimate gate(keeper), *Journal of Antitrust Enforcement*, jny013, <https://doi.org/10.1093/jaenfo/jny013>

7.3. Different forms of Abuses in reference to Data

7.3.1. What may be considered as abuse in a digital economy?

There are several forms of abuses regarding prices and output, and the case law regarding such abuses are abundant. However, competition seems to operate differently in the digital economy. Indeed, several services provided on the Internet, are provided for free, so to increase the number of users, while this will attract business users on the other side of the platform to get access to the users. Along with data analytic capacity, platforms expend resources to attract users, whether on media content, facilitating user-generated content, or offering low prices, convenience, and selection. Interestingly, since the platforms offer many services for free to users, one side of the market is driven by demand. This can depend on the quality of results, products, or content, in addition to user restraints such as free time and the cost of connecting to the Internet. Demand and supply curves incorporate more sophisticated factors. However, the free side of the market exists only because businesses and customers are paying. In need of important channels for distribution or marketing, business users can have a difficult bargaining position.

In the digital economy, abuses seem to be centred around platforms. Firstly, the platforms may use anticompetitive conduct so to gain market power for the platform vis-à-vis other platforms (inter platform or ecosystem competition). Secondly, platforms may be used to favour or discriminate to the benefit of affiliated or directly owned firms in downstream or upstream markets. Indeed, platforms that have gained market power, being bottlenecks, invite the possibility of vertically integrated platforms to exclude competitors or to lock-in customers or business users. In addition, their control and use of data regarding their customers and users, and financial resources, platforms may have gained a leading role in their respective networks (the networks could be understood as different markets, a “social network” of actors that redistribute scarce re-sources within a certain order).¹⁸⁹³ They may exploit customers and business users by utilizing business strategies of, for example, personalised pricing, and exploitative tying.

To address the issue of platform dominance and abuse, we need to use competition law to regulate the underlying conduct that precipitates indirect (or direct) network effects and tipping, so to prevent monopolies from forming, while still not suppressing the incentive for firms to pursue platform-to-platform competition. Moreover, the issue is whether we should turn on the firms that gain monopoly position due to indirect network effects and tipping. We know that the firms that gain this position will most likely hold on to their monopoly position because it is very difficult to break a monopoly built on indirect network effects, tipping and path dependency.¹⁸⁹⁴

1893 Rupprecht Podszun, *Innovation, Variety & Fair Choice – New Rules for the Digital Economy: Expert Opinion for Finanzplatz München Initiative (FPMI)* (December 1, 2017). Available at SSRN: <https://ssrn.com/abstract=3243403> or <http://dx.doi.org/10.2139/ssrn.3243403>

1894 Jens Prüfer and C. Schottmüller, ‘Competing with Big Data’ (CentER Discussion Paper; Vol. 2017-007), Tilburg: CentER,

Competition authorities could respond by examining the source of competitive advantage. They would examine whether market power derives from characteristics on which rivals could compete. While superior quality usually enables an entity to acquire network effects when a market has not yet tipped,¹⁸⁹⁵ network effects can render a market un-contestable, regardless of the potential of subsequent competition. It may not have a chance to materialize. Enduring market power based on network effects resembles a government-sponsored monopoly, in that the winner does not sustain the position by competing on the merits. Taking this approach would not necessarily counsel in favour of regulation, but it would affect the strength of arguments related to access and investment incentives.

Consumers may prefer that a market tips. Most cannot be bothered by the hassle of multiple social networks. When competing for the network, to implement a data-driven business model or make use of network effects cannot, generally, in-itself be anticompetitive. These business strategies represent economies of scale or scope.¹⁸⁹⁶ Antitrust harms and potential effects need to be identified. Such conduct may, for example, be predatory conduct, tying, conglomeration etc. As case law stands today, it seems clear that anticompetitive harm and conduct needs to focus on exclusionary effects caused by the conduct of the dominant firm, outside the realm of competition on the merits.¹⁸⁹⁷

In addition to this, Competition Authorities need to acknowledge that platforms compete (inter platform competition), and that they compete for consumers and user attention, and the competition for users and consumers attention is fierce.

A way to address the issue that platforms may monopolize their core platform service markets, is to say that when a monopoly in a market driven by indirect effects has been established, the system leader controlling the platform is the 'regulator' of that network. There will be little if no competition for that network and the system leader therefore has a special responsibility to create a levelled playing field for downstream and connected markets.¹⁸⁹⁸ This could imply far-reaching responsibilities for the system leaders.

A competition problem in this regard on the Internet seems to be that firms (actual or potential competitors) are excluded or restricted from a platform or from a website that is necessary or indispensable for the firm's business. Exclusion may be clear-cut, the system leader refuses to grant access, or gives only access on anticompetitive exclusion-

Center for Economic Research.

1895 Some have argued better quality overwhelms the influence of network effects, with, perhaps, a lag of some years. Gerard J. Tellis, Eden Yin & Rakesh Niraj, Does Quality Win? Network Effects Versus Quality in High-Tech Markets, 46 J. of Marketing Research 135, 149, 153 (Apr. 2009), in *The Economics of E-Commerce* (Baye, M.R. & Morgan, J., eds. 2016).

1896 Paul Belleflamme & Martin Peitz, *Industrial Organization Markets & Strategies* 663-64 (2010); Mark R. Patterson, *Antitrust Law in the New Economy* 75 (2017).at 639; Richard Cuthbertson, Peder Inge Furseth & Stephen J. Ezell, *Innovating in a Service-Driven Economy* 136-7 (2015). at 151.

1897 See Case C-413/14 P – Intel v Commission ECLI:EU:C:2017:632, and Case C-209/10 – Post Danmark ECLI:EU:C:2015:651. On the exceptional circumstance doctrine, cf. C-241/91 and C-242/91 RTE, ITP & BBC v. Commission, ECLI:EU:C:1995:98 (Magill) etc.

1898 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, *Competition policy for the digital era*, Final report, 2019, 69 et seq.

ary terms. It could also be subtler, that the firm is discriminated and are not visible on the platform website, gets less relevant data from the system leader than other firms in the ecosystem. Indeed, an Internet intermediate may be abusing their dominant position by leveraging that advantage to gain ecosystem dominance. The advantage in data may originate from a right to access and use customers data, and while such a clause may be considered anticompetitive in certain situations, an advantage may be caused without the use of specific potentially anticompetitive clauses, while it only reflects being the 'hub' for all relevant data in the ecosystem. In reference to data, new forms of abuses can be imagined, or we will need to revisit some of the established forms of abuse in order to update them for the era of digital competition.

7.3.2. Refusing or obstructing access to data/algorithms or interoperability

Whether entities operating on a platform can call upon refusal to deal law to enable access to data, algorithms or, generally, to avoid being excluded from ecosystems or infrastructure, will depend on different legal tests. To gain access to algorithms, which often benefit from IP protection, supplicants will need to satisfy the new product criterion in the EU, which requires material differentiation or improving upon the service offered by the dominant undertaking. In the U.S.A., supplicants must refute a presumption of validity concerning the business justification that the IP holder gives for not granting access. Businesses operating downstream on the platform will have to satisfy a more demanding legal burden to gain access to data analytics.

Looking at data, Amazon, for instance, invests immense sums in technology, its distribution system, cloud storage, and creating the context through which consumers express demand. Even if trade secret law or database right (copyright) does not protect the data, it still qualifies as an asset. And platform business models utilize data to monetize such investments. Amazon will say that the aggregate data it collects belongs to the platform. Absent the platform, the data of business users would not exist. EU privacy law has not recognized a right to port anything but the personal data of individual users. Absent competitive concerns, asset owners could point to the common attributes of ownership. A platform may select partners to sell services. It may charge to use the asset. In selecting partners, a platform reasonably might prefer those entities with a compatible business model, those that offer the greatest returns, or at least non-competitors. For competitors, it might demand that the business establish the indispensability of the asset for competition, before agreeing to grant access.

Interoperability implies two scenarios. Firstly, in the context of IT infrastructure, that there is horizontal Interoperability within IT and the world-wide-web. This does not imply net neutrality, only that there is interoperability horizontal between the various ecosystems. Often such interoperability is built of common technical standards. Secondly, in the context of big data, interoperability refers to the ability to achieve data and information sharing between different data subjects by applying common data structures and transmission standard settings. Interoperability creates the possibility of linking

platforms operating in different markets, through the exchange of data (horizontal data interoperability). It undoubtedly will promote data sharing and integration, improve the reuse of data sets,¹⁸⁹⁹ and may provide more applications and conveniences for data-driven enterprises and consumers. Platforms could gain from it. Interoperability also could drive further consolidation. Unless digital markets jointly accept horizontal data portability, platforms gain nothing from users leaving. A different balance may apply to vertical data interoperability, where business users and platforms exchange data within the ecosystem.

Platform data starts with the user, and the data is randomly captured without the user's consent, which may violate the data privacy protection regulations. The platform might actively restrict data interoperability for the benefit of the protection of user privacy.

Inhibiting data interoperability is not only a privacy or technical issue, but also an issue about competition and law. The openness or hindrance of data interoperability does not depend solely on whether it can be realized technically or whether it should be shared among operators. An important point is whether non-interoperability will damage the interests of users and the fair and free competition order.

A relevant, if not dispositive, question is whether platforms might choose to interoperate by participating in a market for data. Google has made data portable at the individual level, Amazon has not.¹⁹⁰⁰ A digital standard setter would have to create common interfaces. The major platforms all operate in separate markets, providing distinct, yet to a certain extent, overlapping, services. The fact that the platforms have not participated in creating a market for data reveals that data is a metric of competition. It also shows that they view the other platforms as offering a similar service, selling consumer preferences in tangible form, and creating markets.

When evaluating how a duty to interoperate might look, a court reasonably might distinguish between data that a single user or business might generate, and aggregate data compiled by all users of the platform. From a profitability perspective, platforms could part with individual data. Exporting larger data sets or categories of data risk diverting revenues away from the platform.

In justifying the possibility of imposing a duty to interoperate, a court might ask to what extent must platforms focus on consumer interests, particularly outside the platform. Platforms reasonably might argue that the scope of their responsibility to promote consumer interests should not extend beyond the platform, since they do compete with other platforms.

Closely connected to refusing access and interoperability of data, is refusing access to data analytics or algorithms, refusing access to technical standards needed to interoperate with platforms and ecosystems. Indeed, no access to IT-infrastructure. Refusing

1899 Josef Drexler et al., Data Ownership & Access to Data: Position Statement of the Max Planck Institute for Innovation & Competition of 16 Aug. 2016 on the Current European Debate, ¶ 40, Research Paper N. 16-10, <http://ssrn.com/abstract=2833165>.

1900 Online Platforms & the Digital Single Market, UK House of Lords Paper 129, ¶ 245 (20 Apr. 2016).

Interoperability or accessing data analytics, eg algorithms, imply that the user needs access to some sort of technology which may very well be protected by Intellectual property rights. That implies the use of competition law to gain access to such property right, which raises a number of issues and adjustments that need to be made so as to achieve the balance between IP rights and competition that may promote the most innovation¹⁹⁰¹.

In reference to technical de jure standards, there is a general consensus that such standards should be available under FRAND terms. However, the standards now being developed for the IoT in specific and generally for the digital economy are not always collective efforts (de jure standards), rather large system leaders try to develop their own de facto standards. These may not (always) be generally available and the system leaders may claim exclusivity under intellectual property law.¹⁹⁰²

7.3.2.1. A US perspective on access to data and interoperability

Data resembles the assets that refusal to deal jurisprudence in the U.S.A. has considered. The Colgate doctrine represents the starting point, and it empowers traders to select the parties with whom they will deal.¹⁹⁰³ Amazon exercises this right when contracting with the businesses that can sell on its platform. The doctrine logically may restrict the question of data access to entities inside this pool.

Google seeks to rank all relevant sources, although the entities appearing in Google organic search do not choose to deal with Google in a conventional sense.¹⁹⁰⁴ Its business model may expose it to more numerous requests for data.

Businesses selling on platforms could claim that access to data would generate more transactions. They would produce and market their products more effectively. Yet the businesses would utilize the information to increase prices. Platforms have sought to promote the interests of consumers in this respect. Before a court will grant access to data, business users will need to establish that the refusal to deal causes antitrust injury.¹⁹⁰⁵ Less transactions should qualify, and the businesses will use the information to offer better quality products, but they further will be seeking to shift surplus. Where platforms compete in the downstream market, the primary antitrust injury would relate

1901 On these difficult trade-offs, see Ioannis Lianos, *Competition Law and Intellectual Property Rights: Is the Property Rights Approach Right?*, (2006) 8 *Cambridge Yearbook of European Legal Studies* 153.

1902 Björn Lundqvist (2017). *Standardization for the Digital Economy: The Issue of Interoperability and Access Under Competition Law*. The Antitrust Bulletin, 62(4), 710–725. <https://doi.org/10.1177/0003603X17733359>. Generally regarding standard-setting, Björn Lundqvist, *Standardization under EU competition rules and US antitrust laws: The rise and limits of self-regulation*, Edward Elgar, 2014.

1903 *In re Adderall XR Antitrust Litig.*, 754 F.3d 128, 134 (2d Cir. 2014). See also *Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 836 F.3d 1171, 1183 (9th Cir. 2016) (stating the Colgate doctrine retains salience because: (1) forced sharing lowers the incentive to invest; (2) it requires courts to act as central planners; and (3) it creates opportunities for collusion).

1904 Jay Matthew Strader, *Google, Monopolization, Refusing to Deal & the Duty to Promote Economic Activity*, *Int'l Rev. Intell. Prop. & Competition L.* (forthcoming, 2019).

1905 *Aspen Highlands Skiing Corp. v. Aspen Skiing Co.*, 738 F.2d 1509, 1523 (10th Cir. 1984).

to ensuring consumers benefit from merit competition, because the platform probably will offer lower-priced and better-quality products.

Existing refusal to deal law additionally requires that the businesses seeking access to data must show a pattern of dealing that the platform ceased, thereby sacrificing revenues to exclude and earn higher revenues later.¹⁹⁰⁶ Amazon has conflicting motives to sell data. It earns a percentage of every sale, suggesting if access to data would boost sales, Amazon would provide it. When a downstream firm runs a business more efficiently than a monopolist could, it will sell more by supporting the distributor.¹⁹⁰⁷

Yet Amazon may refrain from granting access to data because of the potential for price discrimination, which would drive users away from the platform. It also may refrain because granting general access to data at reasonable prices would eliminate the advantage Amazon exploits in those downstream markets where it competes.

Google primarily relies on data to monetize its platform by selling digital ads. It does not offer to sell data apart from those ads.

Forcing platforms to create a market for data by judicial decree would introduce enormous structural changes to digital markets. The essential facilities doctrine has not demanded that monopolists offer goods or services for the sole purpose of strengthening the ability of rivals to compete.¹⁹⁰⁸ The whole point of the doctrine is that they cannot compete effectively without access, or perhaps constrain the monopolist. Effectuating data portability through competition law would create an upstream market to benefit rivals and consumers in all downstream markets. Where granting access to data might jeopardize a platform's business model, courts generally will not order access.¹⁹⁰⁹ This rule about protecting viability would seem to apply more to Google. It could charge less for ads if other platforms could utilize the same information. Yet forcing Google to rank all shopping comparison sites, including its own, by merit does not jeopardize its business model.

Amazon does many things, but it primarily acts as a distributor or retailer. It accounts for about 50 percent of all sales online.¹⁹¹⁰ Amazon should be able to exercise discretion to keep its platform attractive, but that does not conflict with a parallel duty to promote merit competition. Granting access to data in downstream markets where Amazon competes would not weaken its own ability to serve customers. It rather would strengthen the quality of competition.¹⁹¹¹

Competition authorities could force Amazon to bundle data with access to the platform. In other words, they could force Amazon to charge all downstream entities for access to Amazon's data.¹⁹¹² This policy would raise the price to access Amazon's platform and

1906 *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 603, 608, 105 S.Ct. 2847, 2858, 2860 (1985).

1907 *Byars v. Bluff City News Co., Inc.*, 609 F.2d 843, 861 (6th Cir. 1979).

1908 *Cavalier Tel., LLC v. Verizon Virginia, Inc.*, 330 F.3d 176, 187 (4th Cir. 2003).

1909 *Best Ad. Corp. v. Ill. Bell Tel. Co.*, 339 F.2d 1009, 1011 (7th Cir. 1965).

1910 *The Economist*, Oct. 28 – Nov. 3, 2017, Special Report, E-Commerce.

1911 *S. Pac. Comm'n Co. v. Am. Tele. & Tele.*, 740 F.2d 980, 1009 (D.C. Cir. 1984).

1912 Forcing access has that effect. And "[o]pen access does not mean free access." Spencer Weber Waller & William Tasch,

exclude the possibility of some rivals competing, but it would strengthen competition on the platform. The policy would not necessarily eliminate the issue of pricing: Unless competition authorities say otherwise, Amazon still could choose whether to offer a flat rate or a rate based on willingness to pay.

Pricing data raises all sorts of issues. To justify denying access, U.S.A. courts have focused on the potential for free riding, which lowers efficiency and the incentive to produce.¹⁹¹³ Securing adequate compensation for services qualifies as a universal business justification.¹⁹¹⁴ Should a competition authority isolate the cost necessary to offer data collection? Data analytics? This refers squarely to licensing fees. Should it incorporate a margin that reflects the added value that the data brings to the platform operator, or to competition throughout the platform? Throughout the economy?

Although U.S.A. courts often apply more demanding standards in the context of intellectual property, the FTC has additional options to pursue interoperability. In 2013, the FTC challenged Google's conduct of seeking injunctions based on Standard Essential Patents (SEPs) which it recently had acquired from Motorola Mobility against implementers who were willing to take a license on FRAND terms. The FTC utilized the unfair competition prohibition contained in Section 5 of the FTC Act. Concluding that refusing access to its SEPs on FRAND terms and, hence, obstructing interoperability violated the unfair competition rules, it adopted a consent order. Google agreed to cease the conduct. The consent order states that to avoid violation of the unfair competition rules, Google cannot seek injunctions before making offers to the prospective licensees to conclude a FRAND licensing agreement.¹⁹¹⁵

Drawing on this case, it seems that Section 5 of the FTC Act, in theory, may be utilized by the FTC against platform providers that refuse access to their technology or data if it could be perceived as the standard of the ecosystem, and such refusal prevent interoperability.

7.3.2.2. An EU perspective on access to data and interoperability

To analyse possible antitrust harms in reference to not giving access to data, or to discriminate in giving access to data, from an EU competition law perspective, we need to look at some specific, well-known cases. *Magill*¹⁹¹⁶, *IMS Health*¹⁹¹⁷ and *Microsoft*¹⁹¹⁸ stipulate quite high thresholds for accessing intellectual property, trade secrets and, possibly,

Harmonizing Essential Facilities, 76(3) Antitrust L.J. 741, 766 (2010). If pricing access to data proved unworkable, rate of return regulation could apply. See generally Alan Devlin, *Fundamental Principles of Law & Economics* 378 (2015). The rate of return may capture a portion of the value of analytics.

1913 *Rothery Storage & Van Co. v. Atlas Van Lines, Inc.*, 792 F.2d 210, 212-13 (D.C. Cir. 1986) (Bork, J.).

1914 *Morris Comm'cs Corp. v. PGA Tour, Inc.*, 364 F.3d 1288, 1298 (11th Cir. 2004).

1915 *Motorola Mobility LLC and Google Inc.*, Federal Trade Commission [File No. 121-0120] ("Google consent order") <<https://www.ftc.gov/sites/default/files/documents/cases/2013/07/130724googlemotorolado.pdf>>

1916 Case C-241/91 and C-242/91 RTE, ITP & BBC v. Commission, ECLI:EU:C:1995:98.

1917 Case C-418/01, *IMS Health v. NDC Health*, ECLI:EU:C:2004:257.

1918 Case T-201/04, *Microsoft v Commission*, ECLI:EU:T:2007:289.

data held by a dominant firm. They, at least partially, belong to the exceptional circumstance doctrine and indicate that a firm may be granted access to property or even the right to continuously obtain data (e.g., the *Microsoft* case regarding protocol interoperability for the Windows operating system to communicate with back office servers). Indeed, the *Microsoft* case is interesting in this regard, since interoperability is seen as a reason to use competition law to grant access to data. Further, it also relates to leveraging, since the theory of harm includes the notion that Microsoft was leveraging power from the operating systems market, where it was dominant, to the server market, by not giving access to interface information, while using that data for its own server business.¹⁹¹⁹

Interoperability between systems was one of the theoretical cornerstones for testing whether Microsoft's refusal to give interface information to competing server producers could be classified as abuse.¹⁹²⁰ According to the Commission, neither reverse engineering, nor open industry standards, nor the access ensured by the communication licensing programme created in the US, were alternative ways for Microsoft's competitors to achieve product interoperability.¹⁹²¹ Therefore, the Commission stipulated an obligation, later upheld by EU Courts, for Microsoft to supply neutral interoperability information to its competitors on the server market.¹⁹²²

Interoperability could also be demanded in reference to private application programming Interfaces (APIs). Private or privileged APIs might create a strong advantage for services that belong to the same ecosystems, especially when the ecosystem is very large and involves numerous and diverse services. Not being granted access to private APIs implies the risk of exclusion from accessing that and taking advantage of the ecosystem. Ecosystems are connected through APIs, connecting the services. They make the user data accessible only to services from the same ecosystem. If such privileged access to a user's data or connectivity with other services or Internet of Things devices allows a service from the ecosystem to offer a much better product, competitors will not be able to compete on the merits, e.g. based on the best data analytics. APIs can be limited in several ways, and are de facto technical gatekeepers.¹⁹²³

1919 Case T-201/04, *Microsoft v Commission*, ECLI:EU:T:2007:289.

1920 The General Court mentioned "interoperability" 368 times, case T-201/04, *Microsoft v Commission*, ECLI:EU:T:2007:289.

1921 See section 5.3.1.2.3 entitled «There are no substitutes for Microsoft providing interoperability information in the Commission's decision» in *Microsoft* (COMP/C-3/37.792) Commission decision (2007) OJ L 32/23, 178- 185. See also Francois Leveque, 'Innovation, Leveraging and Essential Facilities: Interoperability Licensing in the EU Microsoft Case' (March 2005), 6. Available at SSRN: <https://ssrn.com/abstract=927900> or <http://dx.doi.org/10.2139/ssrn.927900>, accessed 21 March 2018

1922 The US Aspen Skiing case is one of very few antitrust cases where an obligation to collaborate seemed to be the remedy. US Supreme Court, *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985). Kerber, Wolfgang and Schweitzer, Heike, Interoperability in the Digital Economy (January 31, 2017). Forthcoming in: *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* (Jipitec); MAGKS, Joint Discussion Paper Series in Economics, No. 12-2017. Available at SSRN: <https://ssrn.com/abstract=2922515> or <http://dx.doi.org/10.2139/ssrn.2922515>. See also Marina Lao, 'Aspen Skiing and Trinko: Antitrust Intent and 'Sacrifice'' (2005), 73 *Antitrust Law Journal*, 171 et seq.

1923 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019.

However, when it comes to data, when creating standards for data interoperability it is important to know what form of interoperability and whether the aim is industry-wide horizontal standards or vertical ecosystems unique standards.¹⁹²⁴ As discussed in the EU report for competition policy for the digital era, interoperability can be divided into three levels. Data portability implies the ability of the data subject or machine user to port his or her data from service A to service B. Protocol interoperability ensures that two systems can fully work together and that complementary services can be provided. And finally, data interoperability, which is data portability but with real-time, potentially standardised, access for both the data subject/machine user and entities acting on his or her behalf. Existing data interoperability mechanisms rely on privileged APIs, when a user authorises a service B to access his or her data through service A's API.

Each data owner may organize his data in a way which suits his or her own needs and preferences. Yet, without an agreement or a standard on dataset vocabulary,¹⁹²⁵ an organization might create a barrier for synthesis with other data or for its use by others. Several barriers are relevant. First, one should know what each rubric in a dataset stands for and how exactly it was determined, in order to assess its relevance and reliability. Second, barriers may arise from the way in which the data are organized, even if all parameters are known. This is especially problematic if the database includes numerous parameters or is constantly updated.¹⁹²⁶ Platform interoperability implies, instead, using the same technology standard or platform technology or language, or to make different languages, such as .NET, Java, and C++, interoperate. Indeed, it might be difficult technically to require full interoperability for clouds and data.

As illustrated, the issue whether there might be an abuse when a firm is leveraging an advantage in data to a device market, by exclusively using data, is complex and difficult to judge.¹⁹²⁷ There may be valid business reasons not to give access to data, but anti-competitive effects may appear regardless. This creates uncertainty.

To advance a successful business strategy firms need access to large data-sets, while also be able to efficiently utilize these data-sets. This can only be conducted with data analytics tools, mainly based on software containing algorithms. Algorithms can be basic or advanced, and they may be included of software programmes, implying that they can be protected by copyright protection (cf. eg. the EU Software directive). There are

1924 Björn Lundqvist (2017). Standardization for the Digital Economy: The Issue of Interoperability and Access Under Competition Law. *The Antitrust Bulletin*, 62(4), 710–725. <https://doi.org/10.1177/0003603X17733359>.

1925 Regarding open data in EU, there is now a general consensus to use the DCAT Application Profile for data portals and for describing public sector datasets in Europe. DCAT-AP is a specification based on the Data Catalogue vocabulary. It serves to enable cross-data portal searches for datasets and make public sector data more searchable across borders and sectors. This can be achieved by the exchange of descriptions of datasets between data portals. Many data portals in the EU have implemented DCAT-AP for describing datasets. Please refer to “[Who is using the DCAT-AP?](#)” for an overview of DCAT-AP implementers. <https://joinup.ec.europa.eu/collection/semantic-interoperability-community-semic/dcat-ap#Who is using the DCAT-AP?>, accessed 21 March 2018

1926 Daniel L. Rubinfeld and Michal Gal, ‘Access Barriers to Big Data’ (2017). 59 *Arizona Law Review* 339. Available at SSRN: <https://ssrn.com/abstract=2830586> or <http://dx.doi.org/10.2139/ssrn.2830586>, accessed 12 December 2017.

1927 *ibid.*

several in academia that claims that the bottleneck in reference to the digital economy is not data – multi-homing will provide that data will be available in abundance. The bottlenecks in the data driven industries will instead be connected to the algorithms and data analytics. Others have disagreed, and claim that data analytics and algorithm software are and will be freely available even open source. Nonetheless, irrespective of whether data analytics will be available or not, it is quite clear that access only to data is not enough. Firms need access to ecosystems, IT infrastructure. Indeed, interoperability is the leading focus for upholding competition in the digital economy, and the cases referred to above, especially *Microsoft*, are the most prominent cases under EU Law granting right to access under Competition law. However, inspiration can also be found in the *Huawei* case¹⁹²⁸, that does stipulate a right to license standard essential patents (SEPs), and hence indirectly a right to access infrastructure and dominant interoperability de jure standards. Moreover, there are national cases of interest too, where platform providers have a far-reaching obligation vis-avis users.¹⁹²⁹

Apart from this we also see several legislative initiatives that imply that access should be granted to data, but also to platforms and IT-infrastructure. For example the *eCall* regulation in the European Union. In the preamble, it is stated, that according to Recital 16, “[i]n order to ensure open choice for customers and fair competition, as well as encourage innovation and boost the competitiveness of the Union’s information technology industry on the global market, the eCall in-vehicle systems should be based on an interoperable, standardised, secure and open-access platform for possible future in-vehicle applications or services. As this requires technical and legal back-up, the Com

1928 Huawei Technologies C-170/13 – ECLI:EU:C:2015:477 In *Huawei*, para. 53, the Court states “In those circumstances, and having regard to the fact that an undertaking to grant licences on FRAND terms creates legitimate expectations on the part of third parties that the proprietor of the SEP will in fact grant licences on such terms, a refusal by the proprietor of the SEP to grant a licence on those terms may, in principle, constitute an abuse within the meaning of Article 102 TFEU.” seem to reflect an undelying idea to value interoperability between the different products produced under the relevant technical standard, above the patentees right to exclude. Indeed, it is not a license to all requirement, rather that in principle interoperability should be protected. ‘The interface between EU competition law and standard essential patents – from Orange-Book-Standard to the Huawei case’ in *European Competition Journal*, Volume 11, 2015 – [Issue 2-3](#), 367-401.

1929 For example, the french case, *Cedgedim*, where access to a patient database was tied to the purchase of software for data analytics. *Cedgedim* is a cases regarding refusal to access database, if not the user also purchase the data analytic services. Similarly, the Belgian competition authority adopted in 2015 a settlement decision finding the national lottery body was abusing its dominant position. The lottery was found to have been using its client database, created under its legal monopoly for public lottery, when selling its new sports betting products, in a market where they faced competition. Indeed, the Belgian lottery body was re-using unique data sets on competitive markets. French Competition Authority, Decision n° 14-D-06, dated 08.07.2014, relative à des pratiques. mises en œuvre par la société Cegedim dans le secteur des bases de données d’informations médicales. This decision has been confirmed on appeal but is still pending in front of the Cour de Cassation (the French Supreme Court). See also See the French competition authority’s interim measures decision no. 14-MC-02, of 9 September 2014, concerning Engie, at paras. 289 and 293-294; and the UK CMA’s Final Report on its Energy Market Investigation, dated 24 June 2016, at para. 233 of the summary, and in more detail in paras. 11.64 to 11.66; Koen Platteau, National Lottery settles abuse of dominance case with Competition Authority (29 September 2015), accessed 17 September 2016: <http://www.internationallawoffice.com/Newsletters/Competition-Antitrust/Belgium/Simmons-Simmons/National-Lottery-settles-abuse-of-dominance-case-with-Competition-Authority>

mission should assess without delay, on the basis of consultations with all stakeholders involved, including vehicle manufacturers and independent operators, all options for promoting and ensuring such an open-access platform and, if appropriate, put forward a legislative initiative to that effect. Furthermore, the 112-based eCall in-vehicle system should be accessible for a reasonable fee not exceeding a nominal amount and without discrimination to all independent operators for repair and maintenance purposes in accordance with [...] [author's highlight].¹⁹³⁰

The *eCall* directive seems to lay the groundwork for a future where competitors are able to access data originating from cars used by individuals. The groundwork being that the device should be (connected to) a standardized, secure and open-access platform. Interestingly, the idea seems to be that by creating a standard, competitors will be enabled not (only) to produce *eCall* machines under FRAND licenses, but to actually access *eCall* machines in the cars with their own applications so to pick up Data. Neither the car owner, nor the automobile manufacturers should, thus, have exclusive right to the personal data created in the car (the device), while possibly, need to open up the platform in the car to, for example, leasing firms, insurance companies and independent service providers.¹⁹³¹

The recently updated EU Directive on Payment Services stipulates a right for third parties under certain circumstances to access the banking data of consumers. Consumer should be able to agree that third parties provide services, while accessing consumer bank accounts and internet bank sites. DPS II may, to promote competition, require banks to provide standardized API access to third parties under the auspices of the European Banking Authority (EBA).¹⁹³² This may enable third parties to tailor their banking service towards customers, while using data collected by a competitor. Indeed, it makes the bank platform or even the user interface somewhat open access. Or, at least, it paves the way for it to become open access.

A further EU example, where access and indeed control over data is stipulated differently is the PSI Directive, which regulates that data held by the government should be shared with commercial players under certain circumstances. It creates a leveled playing field when making available Public Sector Information (PSI) as input to a commercial activity, i.e. when the PSI is used as components to new products and services.¹⁹³³ Inter-

1930 Regulation (EU) 2015/758 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC [2015] OJ L 123/77.

1931 An example of this development could be the AUDI AG, BMW Group, Daimler AG, Ericsson, Huawei, Intel, Nokia and Qualcomm Incorporated, announce 27 September 2016 the formation of the "5G Automotive Association". The association will develop, test and promote communications solutions, support standardization and accelerate commercial availability and global market penetration. The goal is to address society's connected mobility and road safety needs with applications such as connected automated driving, ubiquitous access to services and integration into smart cities and intelligent transportation. https://www.ericsson.com/news/160927-telecommunications-and-automotive-players_244039854_c. Accessed 23 June 2019.

1932 See Directive (EU) 2015/2366 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Text with EEA relevance) [2015] OJ L 337/35 Cf. EU Commission, 'A Digital Single Market Strategy for Europe', COM(2015) 192 final.

1933 Green Paper on Public Sector Information in the Information Society, Public Sector Information: A Key Resource for

stinly, PSI Directive stipulates a right for commercial competitors to access data from a public competitor without the need to show dominance on the part of the public entity.¹⁹³⁴

The legislative examples above, all give access more widely and with less of a threshold than the exception circumstance doctrine under Article 102 TFEU. Several of these initiatives give competitors right to access platforms, data and other infrastructure surrounding the digital economy. Indeed, the

7.3.2.3. A BRICS perspective

Brazil: Brazilian Competition Legislation (Law 12,529/2011) provides several tools for competition enforcement in digital markets, when it comes to abuse of dominant position and exclusionary practices. To illustrate, the law explicitly lists among the possible anticompetitive conducts the prevention of rival's access to technology and the abuse of industrial or intellectual property rights (art 36, §3, V and XIX).

Despite having extensive powers to act, CADE has adopted a cautious approach in digital markets. Practice and case law have shown that in very dynamic markets CADE is more concerned about intervening in a market when it should not have intervened (false positive error – over enforcement) than about not intervening in a market when it should have done so (false negative error – under enforcement). CADE investigated alleged anticompetitive restrictions in the contracts of Google's online advertising platform, known as AdWords. After a long investigation with advertisement agencies and sponsors, it concluded that most of the clauses in Google's terms and conditions were not capable of restricting multihoming. According to CADE's GS, clauses that had a restrictive potential could not significantly affect competition in Brazil. Again, the focus was on the lack of actual effects caused by the conduct.¹⁹³⁵

Russia: In Russia, refusal to deal is covered by the paragraph 5 part 1 of Article 10 of the Federal Law "On Protection of Competition" dealing with abuse of dominance. This provision refers to "economically or technologically unjustified refusal or avoiding to enter into an agreement with individual customers" with regard to a specific product or service, and does not directly cover data. Up to date, there is no antitrust case law explicitly referring to refusing or obstructing access to data. However, some cases involve elements of such refusal.

Thus, the decision of FAS of Russia against Microsoft Corporation № 1-00-168/00-11-16 dated 15 August 2017¹⁹³⁶ deals with Microsoft's refusal to provide the antimalware

Europe, COM(1998) 585 final, 5.

1934 Björn Lundqvist, Ylva Forsberg ; Marc de Vries; and Mariateresa Maggolino, 'Open Data and Competition Law- Some issues regarding access and pricing of raw data' in MUJLT: Masaryk University Journal of Law and Technology, September 2015, 95-120. 'Turning Government Data into Gold': The Interface Between EU Competition Law and the Public Sector Information Directive – With Some Comments on the Compass Case' in I I C – International Review of Intellectual Property and Competition Law, Vol. 44, Nr. 1, 2013, 79-95

1935 Proceedings 08700.005694/2013-19.

1936 No. 1-00-168/00-11-16 case against "Microsoft Corporation" for violating the antimonopoly law, <http://en.fas.gov.ru/>

software developer, “Kaspersky Laboratory”, with the RTM (release to manufacturing) version of the operational system Windows 10 OS within the reasonable timeline, so that Kaspersky could adjust its software to the new version of Microsoft OS. This resulted in failure of Kaspersky to ensure compatibility with the new version of OS and Kaspersky software being disabled on 42% of computers, upon upgrade to Windows 10 OS. In its approach to this case, FAS of Russia focused not on the “constructive” refusal to provide access to RTM version of Microsoft OS (the set of technical information about the final version of OS), but on the creation of discriminatory conditions for the applicant’s antimalware software in comparison with the proprietary antimalware software of Microsoft Corporation – Windows Defender. Apart from obstructing the access to RTM version of Windows 10 OS, FAS of Russia established that Microsoft imposed the higher requirements of access to its OS for external developers (in terms of use of non-documented APIs) than it had for its proprietary software Windows Defender, with the possibility of blocking the external developers from access to Microsoft OS if the their antimalware software uses undocumented APIs.

The analysis of this case shows that the core of Microsoft anticompetitive practices was obstructing access to its platform for external software developers and impeding the interoperability between its OS and external software. This conduct resulted in favouring its own proprietary software, which was not subject to the same requirements. This reveals the similarity between the Russian case and the above EU case *Microsoft v Commission*¹⁹³⁷ that mandated Microsoft to provide neutral interoperability information to its competitors based on the Microsoft’s refusal to provide information which is essential to compete in the market. The remedies applied by FAS of Russia, in fact, were similar to those of the EU Commission: amending Microsoft’s Antimalware Platform Requirements to ensure interoperability with Microsoft OS and providing the access to RTM version of Microsoft OS on reasonable terms. Therefore, this decision aimed at strengthening intra-platform competition allowing external developers to compete effectively in the downstream market of antimalware software.

It is still an open question why FAS of Russia relied on creating discriminatory conditions rather than obstructing access and interoperability as a theory of harm. FAS of Russia has pointed out that “interoperability” was the key in deciding the case at hand hinting on potential “indispensability” of the access to OS to operate in the antimalware products market: “software ability to operate depends directly on compatibility with the operating system which is the “key infrastructure” for the latter”.¹⁹³⁸ The answer might lay in the higher burden of proof for refusal of access cases and the relatively cautious approach in applying this concept to the digital markets.

India: In India, provisions relating to access to data and interoperability do not find mention in the Competition Act, 2002 yet. However, a review of the Competition Act is under

press-center/news/detail.html?id=50521.

1937 Case T-201/04, *Microsoft v Commission*, ECLI:EU:T:2007:289.

1938 FAS Russia ‘Report about the State of Competition in Russian Federation for 2017’, 235, <https://fas.gov.ru/publications/17041> accessed 10 June 2019.

way, and it is recommended that, with the advent of digital economy, network effects as well as control over consumers' data by firms be also included as a criterion for assessing dominance and determining market power.¹⁹³⁹

Separately, a draft Personal Data Protection Bill (PDPB), 2018 has been proposed as a general regulatory framework to regulate access to data. While interoperability *per se* has not been addressed in the PDPB, 2018 it empowers the Data Principals (e.g. consumers) with the Right to Data Portability, which if exercised could tantamount to interoperability of sorts.¹⁹⁴⁰ The draft Bill is yet to be introduced in the Parliament, though.

China: Article 11 of Interim Provisions on Prohibiting Abuse of Dominant Market Positions, which will take effect on 1 Sep 2019, states that an operator's capacity of mastering and handling relevant data may be considered in the establishment of whether an operator hold a dominant market position. In principle, depending on the specific circumstances of the case, the national competition authorities may take into consideration the big data and algorithmic when assessing the market power of the operator in other sectors. Moreover, Article 13 of China's new *Anti-Unfair Competition Law*, which was amended in 2017, stipulates that "operators shall not use network technology or application services to implement actions that affect user selection and interfere with the normal operation of other operators". China's current judicial practice has included "forced opening data interoperability" under the *Anti-Unfair Competition Law*. In the case of "Sina Weibo v. Maimai", the court held that the legitimacy of business models and technical means is not based on innovation and progress, but whether it is in accordance with the general interests of consumers and the interests of the general public. In this case, "Maimai" is a mobile social networking application. Whether its operator TaoU obtains relevant information through collaborative algorithms, consideration of the interests of users should be a priority, instead of relying on technical ability to improperly acquire competition advantage.¹⁹⁴¹ The court finally established the principle of triple authorization. When a third party grabs user data through Open API¹⁹⁴², it needs to obtain "user authorization", "platform authorization" and "user re-authorization"¹⁹⁴³.

This institutional arrangement has a wide range of applicable values and meanings.¹⁹⁴⁴ However, if the data platform, through the Robots agreement, legal statements or technical confrontation intended to restrict interoperability, prohibits others from capturing

1939 CUTS-CIRC Submission to the Competition Law Review Committee, available at: http://www.cuts-ccier.org/pdf/CUTS-CIRC_Submission_to_Competition_Law_Review_Committee.pdf

1940 Section 26, Draft Personal Data Protection Bill, 2018, available at: https://www.meity.gov.in/writereaddata/files/Personal_Data_Protection_Bill,2018.pdf

1941 Xu Ke: "A Triple Approach to Data Protection – Comment on the anti-unfair Competition Case 'Sina Weibo v. Maimai'", *Journal of Shanghai University (Social Science Edition)*, No. 6, 2017, p. 22.

1942 In addition to the Open API, you can also get data through web crawlers or by changing the underlying settings of the operating system.

1943 That is, the user licenses the platform to collect data, and other operators need to obtain the platform license and the user's re-license when acquiring and using the data.

1944 Huang Xiaojin: "Boundary of Competition Law for Data Sharing and Grabbing in the Big Data Era", in *Research on Financial and Economic*, No. 2, 2018, p. 20.

and sharing data in express terms, then the third party will not be able to access or use relevant data timely and effectively even if the consumers have licensed the right of use to the third party. In other words, the data platform maintains its market position by restricting competitors' access to data or preventing data portability and creating barriers to for potential competitors. In this case, restrictions on data interoperability will constitute an exclusionary abuse as prohibited by the *Anti-monopoly Law*, especially when specific data is a key input to support competitors' innovative products or to improve functionality. Such exclusionary abuse may create a blockade effect in the market, inhibit the market entry or expansion of other competitors, or cause other competitors to withdraw from the market, thereby causing competitive damage to data-related markets.¹⁹⁴⁵ By "restricting data interoperability", the practice created an improper competitive advantage.

Concerning the issue of "opening or restricting interoperability", the *Law against Unfair Competition* and the *Anti-monopoly Law* have made different institutional choices based on different value propositions. The former sets forth the prerequisites for "opening data interoperability" through certain technical means, while the latter provides an approach to regulate exclusionary acts of "restricting data interoperability." Therefore, in practice a delicate balance is sought in pursuing values and weighing interest.

South Africa: From a unilateral conduct perspective, the South African Competition Commission has investigated a few cases in reference to the digital economy and none of the cases led to a finding of abuse.¹⁹⁴⁶

7.3.3. (Exclusionary) Discrimination in providing data and search/algorithmic access and net neutrality

7.3.3.1. The many faces of discrimination in competition law

This Section assumes that access to data or algorithms has been provided (a refusal to grant access is examined by a separate section on refusals to supply) and only focuses on discriminatory access to data or algorithms.

Economists consider that a firm price discriminates when two 'similar' products are sold at prices that are different ratios to their respective marginal costs¹⁹⁴⁷. However, it may

1945 Chen Bing: "Identification of the Application of the Abuse of Market Dominance" in China's Anti-Monopoly Law, in Law, No. 1, 2011, p. 92.

1946 See cases such as Entelligence Ltd ("Entelligence") vs Google South Africa and Dirk Lucas vs Microsoft South Africa and others (2009)

1947 GJ Stigler, *The Theory of Price* (Macmillan, 1987). Different marginal costs for 'similar' products may be the result of 'versioning'— for example, a watch offered with strap of different material, more and less prestigious. A narrower definition is that price discrimination occurs where two similar products with the same marginal costs are sold by the same firm at two different prices: see CM Armstrong, 'Recent Developments in the Economics of Price Discrimination' in R Blundell, WK Newey, and T Persson (eds) *Advances in Economics and Econometrics: Theory and Applications*, Ninth World Congress of the Econometric Society, vol 2 (CUP, 2006), ch 4

also apply to non-price discrimination, for instance discrimination on various parameters of quality. Note however that for economists, a simple difference in price of the same product to various customers does not constitute price discrimination if the difference of price reflects a difference in costs—for example, different distribution costs. Price discrimination may be an exclusionary and/or exploitative competition law concern in various circumstances.

With regard to market-distorting exclusionary price discrimination, it is important to distinguish between primary line (or first-degree) discrimination and secondary line (or second-degree) discrimination.

Primary line (or first-degree) price discrimination may involve for instance the implementation of ‘targeted’ predatory pricing (the dominant undertaking implementing selective and predatory price cuts in the customer segment where it faces entry) and mixed bundling or tying strategies in order to exclude the products of its competitors. The foreclosure effects that may arise in these cases relate to the specific conduct giving rise to discrimination, for instance the predatory pricing, the selective price-cutting or mixed bundling, without the need to consider discrimination as a separate type of abuse.

Secondary line (or second-degree) price discrimination raises less competition law concerns, as the discrimination only concerns a downstream market in which the dominant undertaking allegedly committing the abuse is not active. The concern here is that the dominant undertaking should not distort competition on an upstream or a downstream market, as ‘co-contractors of such undertakings must not be favoured or disfavoured in the area of the competition which they practise amongst themselves’¹⁹⁴⁸. The duties such provision imposes to dominant undertakings is particularly interesting if one thinks of the role some undertakings have in controlling or influencing ‘ecosystems’ composed by a number of business partners, and would be competitors, should one also take into account ‘vertical competition’, in particular vertical innovation competition, seriously, and/or vertical exploitation.

A search engine may discriminate against businesses in ranking results. It would discriminate to prompt clicks or purchases—to favour paid ads. The engine has no incentive to effectuate a purchase or click unless it derives from a paid ad. The data that an engine collects could facilitate this objective. It accumulates market data regarding the most popular products related to key words, and Google accumulates individual data relating to past clicks and purchases. After signing into Google, for instance, two customers might find a different ranking of results, also because of their location.¹⁹⁴⁹

From the perspective of competition law, the concern is that the search engine will utilize data or otherwise alter rankings in a manner either that prevents a transaction or that results in a transaction that confers less consumer surplus than that available using

1948 Opinion AG N Wahl in Case C- 525/ 16, *Meo— Serviços de Comunicações e Multimédia v Autoridade da Concorrência*, ECLI:EU:C:2017:1020, para 74.

1949 Mark R. Patterson, *Antitrust Law in the New Economy* 75 (2017).at 75; Maurice E. Stucke & Allen P. Grunes, *Big Data & Competition Policy* 89 (2016) at 188-89.

the platform. Nearly 90 percent of consumers consult search engines prior to buying products or services online or offline.¹⁹⁵⁰

Data may not always serve the best interests of the user. Previous searches or purchases may act as an obstacle to finding the objective during this search. Less innocently, data may enable the engine to entice a user with impulsive purchases related to past purchases or interests rather than to the keywords in this search. Data may permit presenting more expensive items, or any order that deviates from the most relevant answers to the keyword search. Relevance should relate to the best price-quality ratio.

Where a search engine acts intentionally to maximize ad revenue at the expense of transactions or consumer surplus, competition authorities justifiably might adopt some form of strict liability to deter the practice, because of how search engines make money. In a sense this is primary line discrimination, where the system leader discriminate sites or result including competing ads, while promoting result including its own ads. The offense generally will occur on the organic side, by attempting to divert attention to paid ads. Strict liability could affect how the competition authority applied an existing abuse.

Such conduct may fall under different forms of categories of abuse¹⁹⁵¹. In the EU, despite the label of exceptional circumstances, a conventional abuse that also fits this context is a refusal to deal. Ranking prominently in Google organic results, for those entities that belong on the first page, is indispensable to compete, at least online. And competition will not qualify as effective if criteria other than relevance determine organic search results. Rigged markets constitute the antithesis of effective competition. Just 5 percent of consumers look beyond the first page of search results.¹⁹⁵² After establishing intent, the refusal to deal test could resemble a simple tort where plaintiffs would need to show causation and damages.¹⁹⁵³

A less ambitious abuse might relate to a different category of behaviour, a practice that qualifies as primary discriminatory exclusion. A system leader may not generally give access to some business users, while leveraging the power of the platform downstream onto other users' brick-and-mortar markets. The EU *Google shopping* case presents a possible example of this conduct. Discrimination on behalf of the system leaders, in relation to the platform or the data collected, enables a system leader to leverage onto the market of a business user. The platform provider would collect and give access to data or the result of predictive modelling to a specific firm, while refusing access to others, to enable that firm to leverage the data advantage against existing competitors, could be viewed as secondary line discrimination.¹⁹⁵⁴

1950 Mark R. Patterson, *Antitrust Law in the New Economy* 37 (2017).

1951 On the importance of categorical thinking in competition law regarding abuses of a dominant position, see Ioannis Lianos, *Categorical thinking in competition law and the "effects-based" approach in Article 82 EC*. In: Ezrachi, A, (eds.) *Article 82 EC – Reflections on its recent Evolution* (Hart Pub., 2009)..

1952 Ibid. (citing Ramona Sukhraj, *Organic Search v. Paid Search: Which is Better?* (20 Apr. 2017), <https://www.impactbnd.com/blog/organic-search-vs-paid-search>; Case AT.39740, *Google Search (Shopping)*, C (2017) 444 final, ¶¶ 455, 457).

1953 Ibid.

1954 There are some similar French cases: the French Competition Authority imposed an interim measures to GDF, ordering the gas supplier to grant its competitors an access to some of the consumer data, in particular consumption data, it col-

The dual role of Google, as a digital platform but also a competitor of vertical websites may also be addressed by applying principles deriving out of network neutrality regulation. Network neutrality is an important principle of Internet technology operation, that is, the network provider does not treat the content it transmits differently, and its application in the big data environment is reflected collectively as “search neutrality” and “algorithmic neutrality”.

With the deep development of big data on consumption and the mature development of technologies such as machine learning and algorithm optimization, search engines and algorithms have become more and more “unneutral”. With the user’s past search data and network behavior data, the search engine platform can analyze the user’s search preferences, interest ranges and consumption expectations, select the most relevant web content, and accurately display the appropriate advertisements in the search page. This means that the search results and sorted pages retrieved by the user with personalized keywords have beforehand been subject to the intervention and adjustment of the platform.

The current probes by the EU Commission and the German Bundeskartellamt of Amazon should also be mentioned. According to Competition Commissioner Vestager, DG Comp opened a probe into Amazon’s use of data on its third-party merchants. The idea was to assess the dual role of the e-commerce giant, given that it hosts but also competes against these other merchants. There are concerns that Amazon could be using data about its competitors’ products to its own advantage.¹⁹⁵⁵ It seems that Amazon is using data it collects from its competitors business transaction on Amazon, and use that for setting-up or intensify its own competitive service or product line. Also, third party merchants /business users) seem to be disadvantage in the Amazon ecosystem. The Commission will look into especially issues regarding the use of marketplace data and Buy Box. The subject of examinations conducted by the European Commission will be the standard agreements between Amazon and marketplace sellers, which allow Amazon’s retail business to analyse and use third party seller data. In particular, the Commission will focus on whether and how the use of accumulated marketplace seller data by Amazon as a retailer affects competition. Moreover, the role of data in the se-

lected as a provider of regulated offers (on the gas market). The aim of this interim measure was to allow all suppliers to have the same level of relevant data to make competitive offers to consumers for gas and electricity. (no public information or third party private database existed on households subscribing to gas contracts). French Competition Authority, Decision 14-MC-02 of 09.09.2014. Due to privacy laws, the transmission of GDF data to competitors was conditional to an approval by consumers. A significant share of the consumers did refuse that their data be transferred from GDF to competing operators. The case is discussed in The German and French Competition Authorities joint paper, ‘Competition Law and Data’ (n 1), 20. French Competition Authority, Decision n°13-D-20 of 17.12.2013, confirmed on that points by the court of appeal on 21.05.2015; A similar reasoning has also been used in some merger cases. For instance, in its EDF-Dalkia merger decision. European Commission, “EDF/Dalkia en France”, COMP/M.7137, dated 25.06.2014. 68 French Competition Authority, Decision n° 14-D-06, dated 08.07.2014, relative à des pratiques mises en œuvre par la société Cegedim dans le secteur des bases de données d’informations médicales. This decision has been confirmed on appeal but is still pending in front of the Cour de Cassation (the French Supreme Court).

1955 See the German Competition Authorities press release: https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html?nn=3591568

lection of the winners of the “Buy Box” and the impact of Amazon’s potential use of competitively sensitive marketplace seller information on that selection. The “Buy Box” is displayed prominently on Amazon and allows customers to add items from a specific retailer directly into their shopping carts. Winning the “Buy Box” seems key for marketplace sellers as a vast majority of transactions are done through it.¹⁹⁵⁶

On Amazon Marketplace customers can also find many reviews of sellers by other customers (so-called seller ratings) and of products (so-called product reviews or customer reviews). Business users (sellers) consider themselves at a disadvantage in respect of seller ratings because Amazon is not rated as a seller itself. They complain that they face disadvantageous consequences from negative seller ratings (in the presentation of their offers on the website and in the ranking list and the Buy Box) whereas no seller rating is requested after a purchase transaction from Amazon Retail. However, Amazon has asserted that it does not prioritise its own retail business over third-party sellers. The question as to whether reviews can influence the ranking of sellers, including the Buy Box, may possibly also be addressed by the EU Commission’s current inquiry against Amazon.¹⁹⁵⁷

The German probe supplemented the EU Commission probe, and, as stated above, the German Competition Authority analysed Amazon’s terms of business and related practices. The Authority looked into several terms and covenants: liability provisions to the disadvantage of business users, the combination with choice of law and jurisdiction clauses that restricted business users to file complaints against Amazon only in court of law in Luxembourg, the rules on product reviews discriminated business users vis-a-vis Amazon retail business, rule giving Amazon the right to withhold or delay making payment etc.¹⁹⁵⁸ Amazon seemed to have contractually limited its liability vis-a-vis business users in reference to intellectual property infringements, and the standard contract also stipulated far reaching right to terminate business users accounts.¹⁹⁵⁹ Moreover, the standard contract included clauses assigning rights to use the information material which a seller has to provide with regard to the products offered to an extent that business users may not provide a qualitatively better package of product information on their own websites, “quality parity clause”. This will enable manufacturers and sellers to

1956 European Commission, Press release 17 July 2019 Antitrust: Commission opens investigation into possible anti-competitive conduct of Amazon, https://ec.europa.eu/commission/presscorner/detail/en/ip_19_4291

1957 German Competition Authority, Case summary, Amazon amends its terms of business worldwide for sellers on its marketplaces – Bundeskartellamt closes abuse proceedings Sector: Online sales Ref: B2 – 88/18 Date of Decision: 17 July 2019, https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B2-88-18.pdf?__blob=publicationFile&v=4

1958 German Competition Authority’s press release Bundeskartellamt initiates abuse proceeding against Amazon, 29.11.2018, https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html?nn=3591568

1959 In 2018 Amazon permanently blocked more than 250,000 seller accounts on its German Marketplace and temporarily blocked over 30,000 accounts. German Competition Authority, Case summary, Amazon amends its terms of business worldwide for sellers on its marketplaces – Bundeskartellamt closes abuse proceedings Sector: Online sales Ref: B2 – 88/18 Date of Decision: 17 July 2019, https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B2-88-18.pdf?__blob=publicationFile&v=4

make their own websites more attractive in terms of quality (e.g. images, content) and prevent a potentially stronger pull effect to Amazon Marketplace due to a standardised product description across sales channels. In particular, possibilities to enter into effective competition with large internet platforms on price and quality are to be kept open. The German Competition Authority also made reference to its 2013 proceedings to abolish price parity on Amazon Marketplace in and against the best price clauses of hotel portals (see HRS and booking.com cases) already served this purpose.¹⁹⁶⁰

Amazon agreed however to change the terms and condition and the German Competition Authority closed the investigation, making reference to the upcoming platform to business regulation and that the standard contract by Amazon would need to get amended due to the implementation of said regulation. Indeed, the decision by the German Competition Authority lies in the interface between competition rules and the regulation of unfair contract terms, in reference to business to platform relations, and the Authority seems to be using both interchangeably.

As discussed in *infra*, with big data, certain platforms may be able to exploit customers through price discrimination. By using large datasets and algorithms they may create “almost perfect behavioral discrimination”, which increases overall consumption and profits by exploiting asymmetric information. In the field of algorithm analysis and application, the dynamic pricing mechanism based on machine learning and algorithm autonomous optimization helps enterprises to use data to implement discriminatory pricing. “Big data entraps those who trust it” is a typical example of abuse of big data to implement price discrimination and squeeze consumer surplus.¹⁹⁶¹

7.3.3.2. In-depth EU Perspective on the Google shopping case and Net Neutrality

In a digital economy characterized by zero-prices, the focus has been on other parameters of discrimination than price. The main thrust of this emerging case law is related to the need to ensure the neutrality of the digital platform vis-à-vis the various members of its ecosystem, in particular if it competes with them downstream or upstream. This dual role, for instance platform and retailer, or a search engine and a vertical website (e.g. comparison shopping website, a maps service etc) may establish duties of non-discriminating to an undertaking holding a dominant position. The narratives of ‘search neutrality’ and ‘network neutrality’ convey the importance of the prohibition of discriminatory practices favouring the incumbent’s activities upstream or downstream the value chain in EU law.

As discussed above, the European Commission initiated in November 2010 an investigation against Google’s parent company, Alphabet, with regard to its general search re-

¹⁹⁶⁰ Ibid, 4. Regarding price parity clauses cf. Section XX of E-commerce.

¹⁹⁶¹ In recent years, some Chinese consumers have found that when booking hotel rooms and tickets for taxis and movies through certain online platforms, the prices online are even higher than those they can enjoy at physical front desks; and surprisingly too, the online prices displayed for VIP members are much higher than those displayed for ordinary members. “Is big data entrapping those who have trust in it? Demystifying the True Problem behind the Dispute, in China Youth Daily, March 27, 2017, 9th edition.

sults on its search engine Google. Relying on a large body of evidence, the Commission issued a decision in June 2017 finding that Google has abused its market dominance as a search engine by giving an illegal advantage to another Google product, its comparison shopping service and fining Alphabet €2.42 billion, the largest fine in EU competition law history¹⁹⁶².

Relying on Google's high market shares which exceeded 90 per cent in most countries, the Commission found that Google was dominant in general Internet search markets in all thirty-one countries of the European Economic Area (EEA), since 2008, with the exception of the Czech Republic where it has been dominant since 2011. It was also noted that almost 90 per cent of Google's revenues stem from adverts, such as those it shows consumers in response to a search query, which indicates that the Commission took into account the paying side of the platform, thus connecting market share on the search side with revenues on the advertising side. The Commission also found that there are high barriers to entry in these markets, in part because of network effects, as the more consumers use a search engine, the more attractive it becomes to advertisers, the profits generated being used to attract even more consumers. The Commission also noted the importance of the data a search engine gathers about consumers, which can in turn be used to improve results and thus make the search engine more attractive to them.

Google's abusive conduct concerned the 'separate market of comparison shopping in Europe', to which it first entered in 2004. Its 'Google Shopping' website offered consumers the opportunity to compare products and prices online and find deals from online retailers of all types, including online shops of manufacturers, platforms (such as Amazon and eBay), and other re-sellers. Despite the fact that Google's comparison shopping business' performance was relatively poor, according to the Commission, Google was able to reverse that trend and attract considerable traffic as it began in 2008 to implement in European markets a fundamental change in strategy to push its comparison shopping service. Attracting traffic is, of course, very important, since it brings bigger advertising revenue. The Commission found that this strategy relied on Google's dominance in general Internet search, instead of competition on the merits in comparison shopping markets and apparently involved the following conduct:

- Google has, according to the Commission, systematically given prominent placement to its own comparison- shopping service, its results being displayed at or near the top of the search results.
- Google has allegedly included a number of criteria in its generic search algorithms, as a result of which rival comparison shopping services were demoted in its search results. In contrast, Google's own comparison- shopping service were not subject to Google's generic search algorithms, and thus were not subject to such demotions As a result of these practices, Google's comparison shopping

1962 Google Search (Shopping) (Case AT.39740) Commission Decision (26 June 2017), available at http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_39740

service became much more visible to consumers in Google's search results, whilst rival comparison shopping services were much less visible. As the Commission found evidence showing that consumers click far more often on results that are more visible, that is the results appearing higher up in Google's search results, this being particularly the case on mobile devices given the much smaller screen size, Google's alleged conduct conferred to its own comparison shopping service a significant competitive advantage compared to rivals.

Noting the special responsibility of dominant undertakings not to abuse their powerful market position by restricting competition, either in the market where they are dominant or in separate markets, the Commission found that Google's conduct amounted to an abuse of Google's dominant position in general Internet search. According to the Commission:

'The Conduct is abusive because it constitutes a practice falling outside the scope of competition on the merits as it: (i) diverts traffic in the sense that it decreases traffic from Google's general search results pages to competing comparison shopping services and increases traffic from Google's general search results pages to Google's own comparison shopping service; and (ii) is capable of having, or likely to have, anti-competitive effects in the national markets for comparison shopping services and general search services'¹⁹⁶³.

In conclusion, the Commission seems to focus on both the form of the conduct in question, which consisted in leveraging *and* discrimination, and on its effects on the Google's rivals. The Commission stated that '(a) system of undistorted competition can be guaranteed only if equality of opportunity is secured as between the various economic operators'¹⁹⁶⁴. Although this seems at first sight as aiming to protect competitors, the Commission noting that 'competitors should be able to compete on the merits for the entire market and not just for a part of it', it could also benefit consumers, the Commission also observing that '[c]ustomers and users should have the opportunity to benefit from whatever degree of competition is possible on the market'¹⁹⁶⁵.

In addition to the €2.42 billion fine, calculated on the basis of the value of Google's revenue from its comparison shopping service in the countries affected, the Commission also required Google to stop its illegal conduct within 90 days of the decision and refrain from any measure that has the same or an equivalent object or effect. What is particularly significant is that the decision orders Google to comply with the simple principle of giving equal treatment to rival comparison shopping services and its own service, meaning that 'Google has to apply the same processes and methods to position and display rival comparison shopping services in Google's search results pages as it gives to its own comparison shopping service'¹⁹⁶⁶.

1963 Ibid, para 341.

1964 Ibid, para 331

1965 Ibid., para. 353.

1966 Ibid, paras 699 and 700

Public authorities have not limited their action in the search engine segment in order to protect vertical websites, such as content providers, which is the most competitive segment of the digital value chain because of the low costs of entry and the absence of natural monopoly characteristics, but have also resorted to regulate the other segment with which content providers are dealing with, the network element (Internet Service providers or ISPs), which presents some natural monopoly-like characteristics, in view of the important fixed costs one needs to incur for the last mile service, plant wiring (or fiber) linking the premises with the content delivery network. Network neutrality (net) policy aims to regulate ISPs and ensure equal treatment of data traffic being transmitted over the internet, prohibiting ISPs from blocking or slowing down of Internet traffic unless this is to comply with a legal order, to ensure network integrity and security, and to manage congestion. The policy is broadly intended to block network operators from gaining an advantage because of the structure of the market (ie their commercial bonds with downstream operators) to affect competition either in the market of reference or in related markets. The principle of net neutrality was enshrined in EU law by Regulation 2015/2120 (also called the Telecom Single Market or TSM Regulation) adopting common EU rules on net neutrality¹⁹⁶⁷. According to these rules, there can be no blocking, throttling and discrimination of internet traffic by Internet Service Providers (ISPs), which effectively denies them the possibility to pick winners or losers on the internet, or decide which content and services are available¹⁹⁶⁸.

Given the inherent vagueness of the TSM Regulation, it has been argued that competition law should be used as an interpretative tool in reaching the objectives set out in the regulation¹⁹⁶⁹. Some authors argue that competition law has the right standards of analysis on how the non-discrimination principle (which stands at the basis of net neutrality) should be conducted, while maintaining the right level of flexibility that *ex ante* regulation is not necessarily concerned with¹⁹⁷⁰. *Ex ante* regulatory intervention would be justified if its benefits outweigh costs; it would be important to avoid a situation where the inability of network providers to obtain a return would reduce their incentive to invest in the network level and infrastructure. *Ex post* competition law would instead allow the network providers to gain the returns (that can then be reinvested on infrastructure) in whatever way they seek, provided this does not distort competition dynamics. Furthermore, it is argued that *ex post* competition intervention will allow further flexibility also on content providers to develop application-level innovation without the constraints of an *ex ante* obstructive non-discriminatory regulation¹⁹⁷¹.

1967 Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access, [2015] OJ L310/1.

1968 For more information on these rules, see ec.europa.eu/digital-single-market/en/open-internet-net-neutrality.

1969 P Alexiadis, 'EU Net Neutrality Policy and the Mobile Sector: The Need for Competition Law Standards' [2016] *Concurrences Review* No. 3 1.

1970 *Ibid.*, 3.

1971 N Angulo Garzaro and A Angulo Garzaro, 'EU competition law and the telecoms single market: network neutrality in the aftermath of the TSM Regulation' (2016) 23 (1) *LESIJ* 40, 44.

There are four points that show that the TSM Regulation would benefit from the guidance of competition law in net neutrality¹⁹⁷²:

Textual references in the TSM Regulation show complementarity between the type of regulation envisaged and competition provisions. The wording in the TSM Regulation of 'agreements' and 'commercial practices' is compatible with the remit of article 101 TFEU and Article 102 TFEU. The strict negative treatment of practices such as blocking and throttling as opposed to other types of traffic management and prioritisation mirrors the by object/by effect distinction envisaged in the competition law regime.

Competition policy intervention in recent years, such as merger control of telecom operators, has shown particular focus and expertise on issues of network capacity and traffic management – key elements in the net neutrality envisaged by the TSM Regulation.

The impartial approach envisaged in respect of bundled services, such as zero-rating practices, is indicative of a view that seeks to eliminate only bundled services that are deemed as market failures rather than bundled services as a whole. In this respect, this approach would suit the competition law narrative with regards to theories of harm and specific types of abuses under article 102 TFEU (such as margin squeezes and tying/bundling) or anticompetitive agreements between Internet Service Provider (ISP) and content providers under article 101 TFEU. In the absence of such issues, there would be no reason to penalise bundled services that have beneficial welfare effects with regards, for example, to customer choice.

It is argued that an *ex ante*, one-size-fits-all, regulatory approach would not work within the emergence of the complex relationships underpinning the Internet value chains. The proliferation of Over the Top ('OTT') operators that are reliant on the infrastructure of ISPs, the presence of significant technology companies such as Google and Facebook, and the increased use of mobile services require a finely tuned analysis that balances competition concerns and welfare gains in the net neutrality arena.

It has been argued that the traditional view of dominating ISPs engaging in blocking or throttling, while originally valid, is shifting to one where power is distributed across all layers of the value chain and significant technology giants are able to exploit ISPs.¹⁹⁷³ Inconsistencies also arise when one does not consider how the competition between ISPs and OTTs is *inter alia* affected by an important factor. The ISPs often bear all the costs of network maintenance and infrastructure used by the OTTs, yet they often are not able to monetise on the additional traffic created by the OTT.¹⁹⁷⁴ The OTTs' upper-hand towards ISPs is also shown by the fact that, irrespective of net-neutrality legislation, the market share of OTTs has increased while eroding the margins of ISPs. Against the idea of the all-powerful ISPs, one could also note the problems ISPs face in the handset device value chain. When dealing against handset makers in this chain, it has been shown

1972 P Alexiadis, 'EU Net Neutrality Policy and the Mobile Sector: The Need for Competition Law Standards' (2016) Conferences Review No. 3 1, 10–11, 19, 25–26, 31.

1973 A Renda, 'Antitrust, Regulation and the Neutrality Trap: A plea for a smart, evidence-based internet policy' [2015] CEPS Special Report No. 104, 6.

1974 Ibid.

that ISPs are unable to retain more profit than handset makers because of the more costly investments to maintain their infrastructure.¹⁹⁷⁵

The arguments above reveal the important interaction between net neutrality and competition law, and the need to take into account the full picture of the modern digital value chains. The Internet's original design has in fact allowed technology giants like Google and Facebook to emerge, and its platformisation has shifted focus to a number of higher layers that are above the original architecture and are formed of a 'patchwork' of multi-sided platforms.¹⁹⁷⁶ Such platforms extract value off the value chains on the basis of different business models and different levels of openness. To this end, it becomes important to think how competition law can engage with the TSM Regulation in light of new technological innovations including 5G mobile broadband systems. These adopt a multi-tier architecture that entails traffic management and prioritisation, and therefore it is not clear the way in which current neutrality legislation would fit in.

A potential option in the application of competition law to the net neutrality landscape could be found in shifting the focus on the value chain, which may offer a great explanatory potential. The OECD has described how there has been a shift from vertical 'all in one' of the traditional telecommunication operators in connectivity, transport, and services, to an uncoupling of these services.¹⁹⁷⁷ Moreover, one can also see a shift in the value chain from a strong geographical and local connection of traditional ISPs (in connection to their physical infrastructure), to more delocalised and globally-oriented players, such as OTTs, that have lower investment necessities with regards to physical infrastructure.¹⁹⁷⁸ The value chain connecting the ISP, OTT and other content providers has already been described, some authors arguing that 'the value of the contribution of each firm is partially dependent on the contributions of other firms' and that '[t]he degree of this value interdependency varies and is not precisely reciprocal'.¹⁹⁷⁹ Indeed, 'in the present context, networks are necessary for all the applications': '[w]hile applications may add value to networks, they are not individually indispensable'.¹⁹⁸⁰

Finally, one can compare the use of IP rights to extract value and the use of IP rights in the digital value chain. Kramer, for example, describes how OTTs (such as Google and Facebook) on higher levels of the value chain 'operate a proprietary virtual network comprised of consumers and data, which is characterized by positive feedback loops that tend to grow large networks even bigger and make entry for alternative providers

1975 J Dedrick et al., 'The distribution of value in the mobile phone supply chain' (2011) 35 Telecommunications Policy 505, 506.

1976 A Renda, 'Antitrust, Regulation and the Neutrality Trap: A plea for a smart, evidence-based internet policy' [2015] CEPS Special Report No. 104, 7.

1977 OECD (2016), 'Digital Convergence and Beyond: Innovation, Investment and Competition in Communication Policy and Regulation for the 21st Century', OECD Digital Economy Papers, No. 251, OECD Publishing, Paris.

1978 J Kramer and M Wohlfarth, 'Regulating Over-the-Top Service Providers in Two-Sided Content Markets: Insights from the Economic Literature' (2015) 99 3rd quarter Communications & Strategies 71, 78.

1979 L F Darby and J P Fuhr, 'Innovation and national broadband policies: facts, Fiction and unanswered questions in the net Neutrality debate' (2011) 20 (1) Media L. & Pol'y 3, 39.

1980 Ibid.

even harder.”¹⁹⁸¹ Similarly, proprietary rights include both software and hardware – allowing to extract value thanks to a strategy that interconnects devices, apps and cloud services of the same firm.¹⁹⁸² This combination of smart devices and apps, with cloud storage and processing allows OTT providers to gain wealth of information on end users, thereby extracting value from the chain. The integration of neutrality principles, either in competition law enforcement, or in the context of sector-specific or horizontal regulation, may reduce the likelihood that the control of a bottleneck may lead to abusive discrimination, in particular, but not exclusively, if the dominant undertaking is vertically integrated and competes downstream or upstream with the undertaking that is subject to discriminatory treatment.

7.3.3.3. BRICS

Brazil: Brazilian Competition Legislation (Law 12,529/2011) provides several tools for competition enforcement in digital markets, when it comes to abuse of dominant position and exclusionary practices. On the other hand, despite having extensive powers to act, CADE has adopted a cautious approach in digital markets. Practice and case law have shown that in very dynamic markets CADE is more concerned about intervening in a market when it should not have intervened (false positive error – over enforcement) than about not intervening in a market when it should have done so (false negative error – under enforcement). This conclusion is based not only on Cade’s decisions on cases related to digital markets, some of them presented below, but also on the comparison with the decisions on cases about the traditional industry, for which the Brazilian competition authority has been relatively more restrictive.

Two reasons might be behind this cautious approach. First, CADE considers that in those markets, it is more complex to demonstrate effects and causal links between the conduct and the impact in the market, in other words, there are multiple factors affecting the evolution of the market. Although the legislation is comprehensive enough to allow for intervention without actual effects (ie based on potential effects), CADE has based its actions of abuse of dominance on a careful analysis of effects and justifications. Second, there is a concern with unduly affecting innovation processes. This is particularly important in Brazil, which generally imports technology and is trying to create an environment that can also lead to producing new technologies (at least on the margins).

An example of the cautious approach is the zero rating case. At the request of the Federal Prosecutor’s Office, CADE initiated an investigation against four major telecom companies – Claro, Tim, Oi and Vivo – regarding allegedly anticompetitive conducts due to the practice known as zero-rating (ie not charging data to access certain applications).¹⁹⁸³ Mobile operators were adopting certain business practices in order to allow access to certain websites/apps, without charging the consumer for the data used to access them.

1981 J Kramer and M Wohlfarth, *Regulating Over-the-Top Service Providers in Two-Sided Content Markets: Insights from the Economic Literature*, (2015) 99 3rd quarter *Communications & Strategies* 71, 76.

1982 P Nooren, A Leurdijk and N van Eijk, ‘Net neutrality and the value chain for video’ (2012) 14 (6) *info* 45, 54.

1983 Preliminary Proceedings n° 08700.004314/2016-71.

Examples of the practices were offers of free and unlimited access to Facebook, Twitter, Whatspp, music apps, or free access to certain *apps*. The relevant markets affected were (i) market for mobile cellular services, with four players with similar sizes; and (ii) market for applications and content, dynamic market experiencing intense changes. Cade General Superintendence (GS) considered that there was no exclusive dealing and that those conducts were justified by business reasons. Moreover, the GS evaluated that some of the business offers could actually foster competition and innovation, by allowing consumers to use their data plans to access other websites. The proceedings were dismissed.

The three cases brought against Google have up until now confirmed this trend. In all the proceedings below, CADE General Superintendence (GS) concluded to that there was no evidence of breach of competition law and the cases were sent to the Tribunal to confirm the dismissal (the Google cases are discussed *infra*, but CADE conducted a similar investigation as the eU Commission into Google shopping, however did not identify a causal relationship between Google's conduct and any harm to competition.

Russia: While the Russian Federal Law "On Protection of Competition" does not have any specific provisions related to discrimination in providing data access and net neutrality, the general prohibition of discriminatory practices is established in paragraph 8 part 1 of Article of the Federal Law "On Protection of Competition". As for net neutrality, while there was a discussion on enacting a law on net neutrality in Russia,¹⁹⁸⁴ as of now net neutrality is not officially established in the Russian legislation.

An example of discriminatory practices in providing access to data may be found in the 2017 case of *Microsoft v. Kaspersky*. In that case, there were two main practices that can be considered discrimination in data access on the part of Microsoft.

1) Kaspersky complained about the insufficient time period provided to external antimalware software developers to adjust their software to the RTM (release to manufacturing) version of Microsoft OS. RTM version of Windows 10 can be regarded as the technical data in a broader sense, necessary to ensure compatibility of external software with the OS and its ability to reach the users and compete in the market of antimalware software.

2) Kaspersky complained that Microsoft did not provide its external software developers with the access to certain APIs. In case an external software developer uses undocumented APIs, Microsoft requires a detailed description of such APIs, but does not guarantee support of antimalware software using such APIs. However, as Kaspersky stated, Microsoft used undocumented APIs for its own antimalware software without indicating them and thus gained an advantage over external developers.

The analysis of this case shows that Microsoft used access to its data to gain advantage over developers that provided external software in comparison to its proprietary anti-

1984 "Traffic Without Brakes: the Net Neutrality Principle May Be Recognized in Russia", Kommersant, 6 August 2018, <https://www.kommersant.ru/doc/3706558> accessed 15 June 2019.

malware software – Windows Defender. This is most evident from the second example of discriminatory practices explained above. Microsoft used data in the form of undocumented APIs to significantly limit access to this data to external developers. The remedies applied by the FAS of Russia in this case was aimed at prohibiting this anticompetitive practice: Microsoft was obliged to change its Antimalware Platform Requirements to level off the positions of Microsoft and external developers in terms of antimalware software support.

China: In China, operators relying on big data to achieve human intervention in search engines and algorithm software not only violates the principle of network neutrality, but may also constitute exploitative abuse of consumers prohibited by competition law. Paragraph 1 of Article 17 of China's *Anti-monopoly Law* provides an enumeration of the abuse of market dominance, and Items 1 and 5 under Paragraph 1 provide for exploitative abuse that directly targets consumers. In this type of abuse, operators with market dominance squeeze and exploit consumers through unfair trade, infringing consumers' fair trading rights.¹⁹⁸⁵ Search engines and pricing algorithms perform data interventions to display different product information to different consumer groups. This information, combined with various product parameters such as price and quality, makes it more complicated for consumers to evaluate and compare product information. It is difficult for consumers to identify the recommended content from the natural search results, and it is more difficult to find different pricing strategies for the same product. The behaviors violating search and algorithm neutrality may be identified as differential treatment and pricing discrimination in exploitative abuse.

It is undeniable that accurate advertising and personalized pricing strategies have increased the efficiency of market operations and reduced search and transaction costs for consumers. According to the established framework of China's anti-monopoly law, for regulating conducts concerning "non-neutrality", it is necessary to draw reasonable conclusions with more detailed economic analysis on a case-by-case basis.

India: The Indian Competition Act, 2002 does not specifically entail provisions for discrimination in providing data access, search/ algorithmic and net neutrality. However, barring search/algorithmic discrimination, they do find mention in individual legislations. As mentioned above, the Draft Personal Data Protection Bill, 2018 has been proposed to regulate access to data.

The National Digital Communications Policy, 2018 recognizes the need to uphold the core principles of net neutrality. Further, in July 2018 the Department of Telecommunications approved the net neutrality rules on recommendation of the Telecom Regulatory Authority of India (TRAI).¹⁹⁸⁶ The rules seek to prevent "any form of discrimination or interference" with data, including "blocking, degrading, slowing down, or granting

1985 Chen Bing: "The Coordinated Development of Anti-monopoly Law Implementation and Consumer Protection", in Law, 2013, No. 9, p. 85.

1986 Ministry of Communications, Department of Telecommunications, Networks and Technologies Cell, Regulatory Framework on Net Neutrality, Notification dated July 31, 2018, available at: http://dot.gov.in/sites/default/files/DoT%20Letter%20on%20Net%20Neutrality%20Regulatory%20Framework%20dated%2031%2007%202018_0.pdf?download=1

preferential speeds or treatment to any content” with the exception of being applicable to Internet of Things and Specialised Services.¹⁹⁸⁷ As TRAI enjoys the mandate of promoting a level playing field and facilitating fair competition in the telecom sector, it has the authority to implement provisions of net neutrality.

As regards search discrimination, the Competition Commission of India (CCI or the Commission) analysed the issue in *Matrimony.com Limited v. Google LLC & Ors. with Consumer Unity & Trust Society v. Google LLC & Ors.* (February 2018).¹⁹⁸⁸ In this landmark order, the Commission enforced a fine of \$21 million on Google for search bias and abusing its dominant position in India.¹⁹⁸⁹ The commission observed that Google’s negotiation search intermediation agreements restricted its Indian partners from using similar services provided by competing search engines.¹⁹⁹⁰ The Commission examined these exclusive search intermediation agreements in view of scale and network effects in online search and advertising coupled with Google’s considerable market shares in these markets¹⁹⁹¹. Thus, it was held that Google’s conduct limited its competitor’s ability to scale their operations by extending and preserving its dominance in search intermediations and thereby leading to its abuse.¹⁹⁹²

Further, in *Samir Agrawal vs. ANI Technologies Pvt. Ltd. & Uber* (November 2018), the Commission dealt with unsuccessful allegations of algorithmic price fixing and price discrimination against app-based taxi service providers in India namely Uber and home-grown Ola Cabs.¹⁹⁹³ The informants (complainants) alleged that the algorithmic pricing takes away the agency of riders and drivers to choose the other side based on price competition and are compelled to accept the prices decided by the algorithm.¹⁹⁹⁴ Further, by preventing drivers from competing on prices, Uber and Ola act as trade associations that facilitate a cartel.¹⁹⁹⁵ Additionally, it was also alleged that Uber/Ola use the personalised data of riders to manipulate prices and charge them based on their willingness to pay.¹⁹⁹⁶ However, the CCI rejected all these contentions with reasons and found no anticompetitive conduct or abuse of dominance by Uber and Ola.

South Africa: There has been one case regarding discrimination, also in reference to app-based taxi service, *Metered Taxi Industry vs Uber* (2015)

The complainant was the Metered Taxi Industry which represents the traditional meter taxis. The metered taxi industry alleged that Uber was:

1987 Ibid.

1988 Competition Commission of India, Case No. 07 and 30 of 2012, available at: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

1989 Ibid.

1990 Ibid.

1991 Ibid.

1992 Ibid.

1993 Competition Commission of India, Case No. 37 of 2018, available at: <https://www.cci.gov.in/sites/default/files/37of2018.pdf>

1994 Ibid.

1995 Ibid.

1996 Ibid.

1. conducting unfair business practices in that it secures partnerships with multinational companies and has exposure to their client base ultimately giving it unparalleled market access,
2. non-compliant with the South African public transport rules and regulations in that it does not pay any permit renewal, rank fees and licencing fees as do other traditional metered taxis, and
3. charging below-cost rates to the detriment of traditional metered taxi operators.

The Commission investigated the complaint under abuse of dominance provisions prohibiting predatory pricing. Preliminary findings, during the screening of the complaint found that Uber driver-partners were not charging prices that are below cost in any of the cities in which Uber operated. The Commission decided not to pursue the case to full investigation as the complaint was lodged within one year of Uber commencing its operations in South Africa and it was unlikely to establish anti-competitive effects.

Moreover, the Commission just finalised its the Data Services Market Inquiry.¹⁹⁹⁷ It was initiated by the Competition Commission in terms of Section 43B(2) of the Competition Act No. 89 of 1998 (as amended) in August 2017, in response to a request from the Minister of Economic Development. The initiation of the Inquiry followed persistent concerns expressed by the public about the high level of data prices and the importance of data affordability for the South African economy and consumers. In terms of enhancing price-based competition. The inquiry provisionally identified that existing international comparisons on mobile prepaid data prices collectively indicates that South Africa currently performs poorly relative to other countries, with prices generally on the more expensive end. Moreover, in the mobile industry, the Commission recommends more regulatory scrutiny and potentially action at the wholesale level of the industry in the event there are no voluntary commitments to improve the terms of wholesale access.

7.3.4. Leveraging and Enveloping

7.3.4.1. An economic perspective on leveraging and enveloping

When a company or system leader holds a high-value data asset and has a clear advantage in the relevant data market, tying or bundling in sales can help the company extend its data advantage to the market of the tied product and then profit from the market.

In reference to system leader, it may be useful to instate and prohibit a general form of leveraging abuse achieved by exclusionary or discriminatory use of data. Such leveraging abuse would require identification of the dominant firm, that, by itself or through a proxy, leverages onto a secondary (brick-and-mortar) market by giving itself or a proxy advantages through increased access to data, so that an exclusionary effect on the com-

1997 Competition Commission, Data Market Inquiry Provisional Findings and Recommendations, <http://www.compcom.co.za/wp-content/uploads/2017/09/Data-Services-Inquiry-Report.pdf>

petitive secondary market materializes, or foreclosing an equally efficient existing competitor, by not granting access to said data.

As we have explained in Chapter 4, because of the important network effects, switching costs and the 'winner takes most' dynamics in platform markets, in order to overcome entry barriers, new entrants generally should differentiate their platform, focusing on niche markets, and offer revolutionary functionality to win substantial market share. Taking inspiration from Resource Based View of the firm literature observing that a firm controlling valuable resources in one market may leverage these resources to enter another market that shares use of those resources, some authors argue that a possible way to enter a new platform is to use an 'envelopment strategy'; This consists in one platform moving into another's market, combining its own functionality with the target's, to form a multi-platform bundle and thus aiming to leverage shared user relationships : by foreclosing the incumbent's access to users, entrants are thus able to 'harness the network effects that previously had protected the incumbent'¹⁹⁹⁸. These practices may succeed if the two competing platforms have overlapping user bases and employ similar components¹⁹⁹⁹. Such 'market entry through foreclosure is also viable when bundling platforms that are weak substitutes or are functionally unrelated' (see Figure 7.x.)²⁰⁰⁰. Digital platforms targeted by envelopment may adopt two defensive strategies: open the platform and matching the attacker's bundle (bundle-to-bundle competition).

Figure 7.1.: Envelopment examples (attacker/target)

	Complements	Weak substitutes	Functionally unrelated
Target largely or fully displaced	<ul style="list-style-type: none"> - Windows Media Player/RealPlayer - Windows Explorer/Netscape - Apple iTunes/Odeo - Smartphone/PalmPilot PDA 		
Entry successful but target maintained position	<ul style="list-style-type: none"> - Apple OS X/Adobe PDF - Microsoft Silverlight/Adobe Flash - Google Reader/FeedDemon - Google Checkout/PayPal - Motorola set-top box/TiVo - Windows Malicious Software Removal Tool/Symantec - Apple Safari/Internet Explorer - Google Chrome browser/Internet Explorer - Google Android/iPhone - Google Base/eBay - Google Maps/Mapquest - Google Blog Search/Technorati 	<ul style="list-style-type: none"> - Facebook Chat/AOL IM - Facebook News Feed/Twitter - Federal Express/UPS* - LinkedIn/Monster.com* - Windows Mobile/Symbian - Google Talk/Skype - Cisco IOS/IBM SNA - Rakuten Auctions/Yahoo Japan 	<ul style="list-style-type: none"> - Cable TV/phone service* - Playstation/DVD player - Smartphone/standard cell phone - iPhone/Gameboy - iPhone + iPad/Amazon Kindle - Xbox Music Player/iTunes - DoCoMo Felica/Visa - Google Gmail/web-based email - Google Docs/Microsoft Office
Failed entry or trending poorly	<ul style="list-style-type: none"> - eBay Billpoint/PayPal** - Google Video/YouTube** - Google Buzz/Twitter - Google Orkut/Facebook - Google Knol/Wikipedia 	<ul style="list-style-type: none"> - Yahoo By Phone/Tellme - Blockbuster/Netflix 	<ul style="list-style-type: none"> - Nokia N-Gage/Gameboy - Google Lively/Second Life

* Reciprocal envelopment, that is, target subsequently entered attacker's market.

** After failed direct entry, attacker acquired target.

Source: T. Eisenmann, G. Parker, M. Van Alstyne, Platform envelopment, (2011) 32(12) Strategic Management Journal 1274.

1998 T. Eisenmann, G. Parker, M. Van Alstyne, Platform envelopment, (2011) 32(12) Strategic Management Journal 1270.

1999 Ibid., 1271 and the examples cited.

2000 Ibid., 1272.

It becomes therefore important to distinguish between leveraging with the aim to maintain a dominant position (defensive leveraging) or leverage it to an adjacent market of a complement in order to exercise market power (aggressive leveraging), and enveloping practices that may introduce more inter-platform competition. This will require a careful look to the characteristics of the platforms, if there are network effects, user overlap, and the platforms employ similar components.

The Chicago school of economics criticized the leveraging theory by arguing that there is only one monopoly profit to be made, which cannot be increased by tying. The seller cannot earn a double monopoly profit and force consumers to pay even more than what they would pay but for tying. The total amount of restriction that the monopolist may profitably be able to impose being fixed. A monopolist cannot increase prices in a secondary market without losing profits in its primary market, eliminating the incentive to use tying for anticompetitive purposes. The Chicago school advanced that efficiency primarily motivates tying, particularly increased convenience and lower transaction costs.

Although the Chicago School considered that tying might be used to price discriminate, they viewed price discrimination as competitive because it could increase output and total welfare (although it is rather indisputable that it would decrease the welfare of final consumers through a transfer of surplus). However, this was not a concern for the Chicago school of antitrust, which focused on efficiency and total welfare, rather than the welfare of the final consumers, and thus included the additional benefits appropriated by the monopolist through the wealth transfer from the final consumers in their welfare analysis. In addition to increasing tied power, as tying can impair the competitiveness of rivals in the tied market in ways that increase tied product prices and profits, and “increasing tying power” if the tying market is not competitive, tying may lead to “intra-product price discrimination”, in case the buyers use varying amounts of the tied product²⁰⁰¹.

Post-Chicago economists criticized the validity of the single monopoly profit theorem²⁰⁰². They also offered a number of possibility theorems according to which tying may be used in an anticompetitive way. Post-Chicago economists developed a number of stylized models in order to prove that if the tied product market is oligopolistic, and not perfectly competitive, undertakings might have an incentive to leverage their market power from the tying to the tied product market for anticompetitive reasons. They argued a number of reasons/settings that provide an incentive to a monopolist to impose tying restrictions that go beyond cost savings, as described above. If cost savings from joint distribution and production exist, they can be taken into consideration as efficiencies to counterbalance consumer losses, but cost savings are not a necessary cause for a dominant firm to profitably introduce tying and/or bundling. These different models suggest

2001 E Elhauge, ‘Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory’ (2009) 123 Harvard Law Review 397.

2002 For a discussion, see E Elhauge, ‘Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory’ (2009) 123 Harvard Law Review 397; N Economides, ‘Tying, Bundling, and Loyalty/Requirement Rebates’ in E Elhauge (ed.), Research Handbook on the Economics of Antitrust Law (Edward Elgar, 2012) 121.

that, in certain circumstances, dominant firms may have the interest to deter dynamic innovation that could render obsolete their technological standard.²⁰⁰³ This situation is exacerbated in a network setting, as the dominant firm will have more incentives to engage in exclusionary practices in order to control the standard of the network.²⁰⁰⁴

7.3.4.2. EU and US: comparative perspectives

In the US, there is a general consensus that leveraging is a violation of Section 2 of the Sherman Act, when a firm holding monopoly power uses that power to create actual, or attempt to create, monopoly on a secondary market. When monopolistic leveraging is used in this manner, courts typically agree that it is a violation of Section 2. In other cases, courts have found that leveraging monopoly power in one market to gain – only – a competitive advantage on secondary market may be a violation of Section 2 of the Sherman Act. The division between the courts has triggered a debate among economists whether leveraging of monopoly power to gain economic benefit is even possible.²⁰⁰⁵

In *Berkey Photo, Inc. v. Eastman Kodak Co.*²⁰⁰⁶, from the 2nd Circuit, the monopolistic leveraging doctrine was recognized as a stand-alone claim. The court reasoned that because it was a violation of the Act to use monopoly power to further existing monopolies, it would also be a violation for Kodak to use its market power to achieve a competitive advantage in a second market. The Kodak case caused a split among Circuit courts.²⁰⁰⁷ The Supreme Court addressed the leveraging issue in *Eastman Kodak Co. v. Image Technical Services, Inc.*²⁰⁰⁸ The plaintiff claimed that Kodak used its dominance in the manufacturing of replacement copier parts to gain a monopoly in the market of copier repair. While it was not discussed in the body of the opinion, the Court endorsed the Berkey articulation of the leveraging doctrine. The Court stated that antitrust liability may result when a firm uses its monopoly power in one market “to achieve a competitive advantage in another”. However, the Supreme Court seems to sway. In *Spectrum Sports v. McQuillan*²⁰⁰⁹ decided only a year after Eastman Kodak, the Court expressed a view that appears to contradict its previous comments on leveraging.

Also, in the recent AT&T and Warner merger case²⁰¹⁰, the DOJ based its appeal on challenging the district court’s findings regarding its increased leverage theory of harm.⁸ The

2003 DW Carlton and RH Gertner Intellectual Property, Antitrust and Strategic Behavior, NBER Working Paper Series, Working paper 8976, available at www.nber.org/papers/w8976 accessed 11 October 2015.

2004 H Hovenkamp, The Antitrust Enterprise—Principle and Execution (Cambridge, Mass, Harvard University Press, 2005) 277–304.

2005 Jennifer M. Clarke-Smith, The Development of the Monopolistic Leveraging Theory and Its Appropriate Role in Antitrust Law, 52 Cath. U. L. Rev. 179 (2003). See also Robin Cooper Feldman, Defensive Leveraging in Antitrust, 87 GEO. L.J. 2079, 2081–87 (1999), analysing the debate among economists as to whether leveraging can be economically beneficial.

2006 603 F.2d 263 (2d Cir. 1979), cert. denied, 444 U.S. 1.093 (1980).

2007 Jennifer M. Clarke-Smith, The Development of the Monopolistic Leveraging Theory and Its Appropriate Role in Antitrust Law, 52 Cath. U. L. Rev. 179, 185 et seq. (2003),

2008 504 U.S. 451 (1992).

2009 506 U.S. 447 (1993).

2010 United States v. AT&T, Inc., No. 18-5214, 2019 WL 921544, at *14 (D.C. Cir. Feb. 26, 2019).

DOJ's increased leverage theory was that by combining Time Warner's programming and AT&T's distribution, the merger would give Time Warner increased bargaining leverage in negotiations with rival distributors, leading to higher, supracompetitive prices for millions of consumers. The idea being that Time Warner post merger would be able to get distribution with AT&T and could therefore make a tougher bargain with other distributors, forcing prices go increase. The DC Appeal Court – focusing heavy on the facts – clearly put a heavy burden of DOJ to show facts to substantiate its leveraging claim.²⁰¹¹ The Court of Appeals found the DOJ's arguments "unpersuasive" as a whole.²⁰¹²

In the EU, leveraging is considered relevant often in combination with other forms of abuses, e.g., tying, marginal squeezing or refusal to supply. However, leveraging can be viewed as a broad underlying stand-alone abuse and reference can be made to cases such as *Commercial Solvents*,²⁰¹³ *Telemarketing*,²⁰¹⁴ *TeliaSonera*,²⁰¹⁵ *Teléfonoica*,²⁰¹⁶ and *Microsoft*,²⁰¹⁷ where the conduct analysed is subordinate to the anticompetitive effects created by the dominant firm.²⁰¹⁸

In *Télémarketing* the European Court found also that a leveraging practice may constitute a standalone competition law abuse that could fall under Article 102 TFEU.²⁰¹⁹ The CJEU concluded that notwithstanding the presence of a refusal to deal, an abuse of a dominant position is committed where,

without any objective necessity an undertaking holding a dominant position on a particular market reserves to itself or to an undertaking belonging to the same group an ancillary activity which might be carried out by another undertaking as part of its activities on a neighbouring but separate market, with the possibility of eliminating all competition from such undertaking.²⁰²⁰

The broad approach followed by the CJEU may be explained by the specificities of the case, the dominant position of the undertaking in question, RTL, being due not to the activities of the undertaking itself but to the fact that by reason of provisions laid down by law there can be no competition or only very limited competition on the market.

2011 Ibid. at *4.

2012 Ibid. at *1.

2013 Case C-6/73 Istituto Chemioterapico Italiano and Commercial Solvents v Commission ECLI:EU:C:1974:18.

2014 Case C-311/84 CBEM v CLT and IPB ECLI:EU:C:1985:394.

2015 Case C-52/09 TeliaSonera Sverige ECLI:EU:C:2011:83.

2016 Case C-295/12 P Telefónica and Telefónica de España v Commission ECLI:EU:C:2014:2062.

2017 Case T-201/04 Microsoft v Commission, Case EU:T:2007:289.

2018 Thomas Hoppner, 'Duty to Treat Downstream Rivals Equally: (Merely) a Natural Remedy to Google's Monopoly Leveraging Abuse' (21 September 2017), 1(3) European Competition and Regulatory Law Review (CoRe), 208-221. Available at SSRN: <https://ssrn.com/abstract=3040605>, accessed 18 February 2018, accessed 23 June 2018.

2019 Case C-311/84 Centre belge d'études de marché — Télémarketing (**CBEM**) v Compagnie luxembourgeoise de télédiffusion SA (**CLT**) & Information publicité Benelux SA [1985] ECR 3261.

2020 Case C-311/84 Centre belge d'études de marché — Télémarketing (**CBEM**) v Compagnie luxembourgeoise de télédiffusion SA (**CLT**) & Information publicité Benelux SA [1985] ECR 3261, para 27.

More recently, the leverage theory has also inspired the recent *Google Search* (Shopping) case of the Commission regarding practices of self-referencing²⁰²¹. It is worth noting that, notwithstanding the fact that the Commission relied on the argument that the loss of traffic from Google's general search results pages represents a large proportion of competing comparison shopping services' traffic which could not effectively be replaced, the Commission framed this case under a standard leverage theory of harm, rather than the more challenging refusal to supply access to an essential facility, or even under a broader theory of exclusionary discrimination under Article 102(c) TFEU. Indeed, the Commission relied on *TeliaSonera* and *Intel* to argue that it is sufficient to establish that Google's conduct was capable of making it more difficult (i.e., short of impossible) for competing comparison shopping services to access their separate but adjacent markets. This hurdle is clearly lower than a requirement to prove that access to Google's general search pages is indispensable, which would have been required had Google's conduct qualified as a vertical foreclosure case akin to a refusal to supply (the *Oscar Bronner* conditions)

The requirements for finding abuse under the monopoly-leveraging concept would then need a finding of two separate markets (data market and device market). The dominant intermediate must adopt a business strategy outside the notion of competition on the merits (right to use, lock-in, non-access to data, non-assert requirement, or discrimination in access to data) on the primary data market. It must subsequently enter onto the (competitive) secondary market or support a proxy's entry. Either entry must cause an exclusionary effect on that market by potentially foreclosing equally efficient, existing competitors. Last, the dominant intermediate must have no objective justification for not giving access to the data.

A leveraging test following the steps above implies that certain features need not be present or, for that matter, identified. The service provided, e.g., the cloud service, does not need to be indispensable, and neither dominance on the secondary market nor elimination of competition on that market need be proven. These steps seem to be set in stone, yet, given that the underlying doctrine of Article 102 TFEU is uncertain, it should be admitted that the steps for a general leveraging test are, by the best estimate, ambiguous.

A third way to recognise not giving access to data as an abuse is to acknowledge that the system leaders are regulators of ecosystems, and that the downstream or connected markets are so-called aftermarkets. When the system leaders' lock-in strategies are so successful, and consumers find it difficult to leave a digital ecosystem, ecosystem-specific aftermarkets can be identified. The relevant yet controversial case in reference to aftermarket is the US Kodak case²⁰²². In that case, Kodak sold copiers, and was recognised as having no market power in that activity but was accused of using its control over Kodak spare-parts to monopolise the market for servicing its copiers. Perhaps, the

2021 *Google Search* (Shopping) (Case AT.39740) Commission Decision, C(2017) 4444 final (27 June 2017), para 339

2022 See the US Kodak case, *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992). For the EU see the Hugin case, *Hugin Kassaregister AB and Hugin Cash Registers Ltd v EU Commission*, Case 22/78, ECLI:EU:C:1979:138

doctrine of aftermarkets can be used also in reference to system leaders collecting data in systems of devices or on platforms, and that controlling an ecosystem would trigger certain special responsibilities in reference to those aftermarkets connected to the platform and the data.

First, an abuse can only be argued if there is some lock-in effects of the customer. In the data economy market definition and the assessment of dominance can be particularly difficult, even more so in the relevant cases of aftermarkets where the initial decision to buy a connected device from an individual supplier may well take place in a competitive environment. Second, it is not necessarily so that the purchaser of a connected device, especially if this is a large industrial customer, suffers from an inferior bargaining position. It may be able to work out the life time price including the after-services.²⁰²³

The remedy for a finding of abuse would be contractual and technical interoperability and data access or that the dominant firm is restricted from accessing and using customers' data. Indeed, utilizing a leveraging test with the view of upholding interoperability for the IoT and access to data tends to increase competition and innovation in the digital economy, and downstream.²⁰²⁴

Demanding a dominant firms to give access or even generally to create a "data common", i.e. access to for all to all data within an ecosystem, would lessen network effects, tipping and the element of central planning, while it would intensify the competition and create efficiencies on after or downstream markets.

This may feel awkward for an efficiency-oriented competition lawyer, because it is akin to industry policy. Nonetheless, for markets plagued with network effects and tipping, protecting data access and interoperability under competition law may be key. Perhaps data access and interoperability can uphold competition to the extent that network effects are prevented and decrease the risk that the legislator will need to create data commons through sector specific regulations.

7.3.4.3. BRICS

Brazil: As stated above, Brazil has up until now been cautious in intervening. The three cases brought against Google have up until now confirmed this trend. In all these proceedings, CADE General Superintendence (GS) concluded that there was no evidence of a breach of competition law and the cases were sent to the Tribunal to confirm the dismissal.

CADE investigated if Google would be unduly favouring its own specific services within the organic results, such as *Google Shopping*, to the detriment of price comparison sites, such as Buscapé, positioning itself in a more privileged area of the webpage (among the sponsored links), something akin to leveraging or tying. The analysis did not lead to a

2023 Josef Drexler, "Data Access and Control in the Era of Connected Devices – Study on Behalf of the European Consumer Organisation BEUC", 2018.

2024 See early discussion regarding the findings by the economists Jens Prüfer and C. Schottmüller, Jens Prüfer and C. Schottmüller, 'Competing with Big Data' (n 72)

finding of violation. Indeed, after an extensive analysis, CADE did not identify a causal relationship between Google's conduct and any harm to competition. CADE also understood that *Google Shopping's* evolution throughout time showed some genuine features of innovation directed to fulfill consumers' and retailers' needs. In this context, CADE's GS dismissed the case.²⁰²⁵

CADE also investigated alleged anticompetitive restrictions in the contracts of Google's online advertising platform, known as *AdWords*. After a long investigation with advertisement agencies and sponsors, it concluded that most of the clauses in Google's terms and conditions were not capable of restricting *multihoming*. According to CADE's GS, clauses that had a restrictive potential could not significantly affect competition in Brazil. Again, the focus was on the lack of actual effects caused by the conduct.²⁰²⁶

Moreover, CADE analysed scraping practices by Google of relevant competitive content held by rival's specific search websites, to use it in Google's own specific search services. It recognised that such practices by dominant companies should be carefully scrutinised. CADE's GS acknowledged that review gathering tools were a relevant asset in the market, but did not find a violation. Indeed, there was not enough evidence of the systematic presentation by Google of content collected from other websites. Also, the conduct would have been irrational as it could not have affected the Brazilian market.

²⁰²⁷

Russia: In Russia, leveraging is not considered as a stand-alone anticompetitive practice.²⁰²⁸ However, there is broader understanding of leveraging as a theory of harm when combined with other anticompetitive practices, such as tying and bundling.

The Google case (decision N 1-14-21/00-11-15 as of 18 September 2015) is exemplary in this respect. In this case FAS of Russia established that Google used its dominant position in the market for pre-installed app stores for Android OS as a leverage in its relations with manufacturers to restrict competition in other markets. According to the EU leveraging test, the Google leveraged its position in one market (pre-installed app stores for Android OS) to enter adjacent markets, such as web search, email, music and video content streaming, etc., which were competitive. It did so through bundling by obliging the manufacturers of mobile devices to pre-install the package of Google apps in order to be able to install Google Play (the product where Google dominated). This created a significant hurdle for developers of competing apps to enter these adjacent markets, thereby causing exclusionary effects.

Apart from bundling, Google engaged in other anticompetitive business strategies, including priority placement for Google applications on the screen of mobile devices, anti-fragmentation requirements and prohibiting the pre-installation of competitors' applications, which can be considered as components of the broader leveraging strategy.

²⁰²⁵ Proceedings 08012.010483/2011-94.

²⁰²⁶ Proceedings 08700.005694/2013-19.

²⁰²⁷ Proceedings 08700.009082/2013-03.

²⁰²⁸ In fact, it is not explicitly mentioned among the list of abusive practices contained in Part 1 Article 10 of the Federal Law "On Protection of Competition", which is not exhaustive though.

Interestingly, FAS of Russia found Google in breach of part 1 Article 10 of the Federal Law “On Protection of Competition” without referring to a specific paragraph, thereby confirming that it is not limited in its analysis to some well-established abusive practices.

In conclusion, FAS of Russia stated that,

Google influences the general conditions of circulation of goods in the adjacent product markets (of mobile applications) due to its dominant position in the market of pre-installed app stores, by creating preferential conditions for its own applications, ensuring that end users prioritise Google applications and, as a result, making monopoly profits in the mobile applications markets.

This summary might serve as an expression of the leverage theory of harm, though not named as such. Probably, in the future, we will witness a broader use of this concept by the Russian competition authority in the digital context.

China: Similar to examining traditional industries in the context of the Chinese anti-monopoly law, to analyze the problem of leveraging by tying in the data field, the first thing to do is to define the “single product”. The issue of a single product in the data market may be as controversial as it happens in the Internet field.

In the case *Qihoo 360 v. Tencent* (for the alleged latter’s abuse of market dominance), the allegation of the plaintiff Qihoo 360 company for Tencent’s tying is that the “QQ software manager” is bundled with the instant messaging software “QQ” and even the “QQ doctor” will be automatically installed when the software “QQ software manager” is upgraded. Qihoo believes that the communication software QQ and the QQ doctor are independent products, and the bundled sales of the two are only a simple superposition of the products, without adding any integration benefits. It’s obvious that the tying/bundling has anti-competitive effects.

The Chinese court adopted a functional standard and claimed that Tencent’s tying practices in this case were anti-competitive. The reason is that the main function of QQ software is instant messaging, which is a separate software product like QQ doctor, QQ butler, security butler and other products.

The most common tying practice in the data market is to bundle the sales of data sets with data analysis software. According to the functional standards established in the previous case, whether there is a functional inevitable connection or a complementary relationship between the product of data set and the analysis service of data, is the key to determine whether the two are independent single products. If the data analysis software provided by other operators in the market can also analyze and process the data set, the bundled sales of the data set and data analysis software may be identified an anti-competitive tying practice. It is sure that in specific cases, the marketing practices and the technical characteristics of the data market need to be taken into account. Perhaps one day in the future, a data transaction that does not include data analysis software may resemble a bicycle with no wheels installed. The so-called tying is no longer valid.

Article 17 of the *Anti-monopoly Law* stipulates that dominant undertakings cannot 5. “Implement[] tie-in sales or impos[e] other unreasonable trading conditions at the time of trading without any justifiable causes.” Although there is some controversy in identifying tying as a common exclusionary abuse, its possible restrictive effect in the data field is still a research priority.

The effect of restricting competition that tying exerts is mainly reflected in the analysis of leveraging. The analysis focuses on the interaction between the two markets, especially on the exclusion and restriction of competition in the tie-in product’s market. Leveraging enables a company to extend its advantage in one market to another, thereby hindering potential competitors from entering the market. With an exclusive collection of data, a company can also raise the costs for competitors, which may result in anti-competitive foreclosure. Moreover, the leveraging reduces the choice and bargaining power of the counterparty.

India: With respect to leveraging in the digital economy, reference can be made to two significant decisions of the Competition Commission of India (CCI). Both the cases revolved around allegations against tech giant Google for violating the Indian competition law. In *Matrimony.com Limited v. Google LLC & Ors.* **with** *Consumer Unity & Trust Society v. Google LLC & Ors.*, the Commission imposed a hefty fine on Google for engaging in search bias and abusing its dominant position in India²⁰²⁹, and recently in *Mr. Umar Javeed & Others Vs. Google LLC & Other*, the Commission ordered investigation into Google alleged anticompetitive conduct of compelling android device manufacturers to pre-install its applications on their devices.²⁰³⁰

In deciding on the former (as discussed above in search bias), the CCI set the tone for its approach in dealing with leveraging by large Internet platforms such as Google.²⁰³¹ It held that *Google is leveraging its strong position in various online search markets to enter into and enhance its position in ancillary market...not only does that cause direct harm to competitors in vertical markets, it also causes direct harm to other website owners...this also harms consumers as they no longer receive the most relevant results*²⁰³².

With respect to the latter decision, the commission observed that compulsory pre-installation of the Google Mobile Services (GMS) i.e. Google’s proprietary applications and services under its Mobile Application Distribution Agreement (MADA) and Android Compatibility Commitment (ACC) agreement signed with android device manufacturers amounts to ‘imposition of unfair condition’ and reduces ‘the ability and incentive of device manufacturers to develop and sell devices operated on alternate versions of Android’, which amounted to ‘prima facie leveraging of Google’s dominant position’.²⁰³³

2029 Competition Commission of India, Case No. 07 and 30 of 2012, available at: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

2030 Competition Commission of India, Case No. 39 of 2018, available at: <https://www.cci.gov.in/sites/default/files/39-of-2018.pdf>

2031 Competition Commission of India, Case No. 07 and 30 of 2012, available at: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

2032 Ibid.

2033 Competition Commission of India, Case No. 39 of 2018, available at: <https://www.cci.gov.in/sites/default/files/39-of-2018.pdf>

South Africa: South Africa has been cautious in addressing the digital economy. In principle, dominance need not arise in the market where the conduct occurs and it is possible to find a contravention where there is dominance in a related market that is being leveraged into a market where the firm is not dominant.

As to anticompetitive effects, in *Nationwide Airlines (Pty) Ltd, Comair Ltd vs South African Airways (Pty) Ltd* in relation to contraventions of section 8(d) of the South African Competition Act, the Tribunal found that for an abuse to arise it does not require evidence of actual harm to consumers and that evidence of substantial or significant likely exclusion (foreclosure of the market to competition) is sufficient.

7.3.5. Tying & bundling practices

7.3.5.1. An economic perspective on tying/bundling in the digital context

Leveraging is not only a standalone theory of harm but may constitute the main theory of harm in the context of another form of abuse, such as tying or bundling. In the context of digital platforms and data, tying and bundling may appear in fundamental and peripheral services. The most obvious peripheral example consists of Amazon, through its Prime subscription, tying logistics to entertainment. The more fundamental questions lurk in the relationship between platforms, data, ads, and product markets. In many cases, businesses wish to have access to both the platform and the data that the platform records. In some cases, businesses may wish to secure access to the data only. For a tying claim to hold, data and ads must constitute separate products. Whether they do depend on which item the questioner focuses. Digital ads cannot exist apart from data. When a business purchases an ad on a platform, it is buying the data that the platform has collected on users. Businesses are willing to pay more for ads that, because of reliable data, appear before consumers most willing to buy their product at the exact time when those consumers would purchase.

However, the same data exists apart from the ads, even if the platforms do not grant access to it. Businesses, of course, would be willing to pay for data apart from the ads, for use on their own sites, on other platforms, or offline. If demand were strong for data, a platform must have a stronger countervailing incentive not to offer it. Were a platform to untie data and ads, businesses still might buy ads on the platform to reach its many users.

In evaluating a tie of data to ads, U.S.A. courts would apply a technological tying test because of the technological, not contractual, relationship between data and ads. This test looks to market power in the tying product, whether the tie harms competition in the tied market, and to whether efficiencies outweigh anticompetitive effects.²⁰³⁴ The EU examines the same elements, including determining whether separate products and forcing exist. It considers effects under the rubric of anticompetitive foreclosure.

[of-2018.pdf](#)

2034 *United States v. Microsoft Corp.*, 253 F.3d 34, 87 (D.C. Cir. 2001) (per curiam).

The price of buying ads on Google suggests it may have pricing power in both the tying and tied markets. Besides price effects, to identify harm to competition, courts examine the contestability of markets. The relevant tied product, digital ads, would operate across platforms in an expansive market. Yet courts reasonably may question whether consumers are contestable across platforms.²⁰³⁵

In support, Google might constitute the most important restraint on Amazon because it can summon the websites of a multitude of rivals for any of Amazon's downstream products. In opposition, due to Google's importance to offline economic activity and to informational inquiries related to products and services that Amazon does not carry, and to other pursuits, Amazon could not contest many Google users. The platforms utilize different data sets. Nevertheless, where ads or product descriptions on Google and Amazon may overlap, the exchange of data would improve the functioning of markets and produce more transactions.

7.3.5.2. The tying/bundling competition law standards in the EU and the US

In the EU, Article 102(d) provides tying/bundling as an example of an abuse when it subjects to Article 102 TFEU a dominant undertaking when 'making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts'. The CJEU dealt with contractual tying in two leading cases, *Hilti* and *Tetra Pak II*, which found tying when used by a dominant undertaking an abuse of a dominant position unless objectively justified²⁰³⁶. Both cases concerned tying of consumables tied to a primary product. Contractual tying may also be subject to Article 101 TFEU.

The more recent case law in the United States requires the examination of the anticompetitive effects of the practice before concluding whether there is illegal tying. In *Jefferson Parish*, the Supreme Court adopted a modified per se test for contractual tying.²⁰³⁷ There was a presumption of anticompetitive effects whenever a firm with market power employed bundling practices that had the effect of foreclosing rivals from significant market shares in the tied product market²⁰³⁸, of extracting consumer surplus²⁰³⁹, or of raising barriers to entry in both the tying and the tied markets.²⁰⁴⁰ In comparison to this case law the CJEU position in *Hilti* and *Tetra Pak II* seems to adopt a quasi-per se illegality approach for contractual tying employed by dominant undertakings.

2035 For the importance of contestability to evaluate tying and bundling, see Jay Matthew Strader, Multiple Product Discounts: A Comparative EU/US Competition Law Perspective, 40(3) World Comp. 421, 423, 455-56 (2017).

2036 See, Case C-53/92 P *Hilti AG v EC Commission* [1994] ECR I-667; Case C-333/94 P *Tetra Pak International SA v Commission* [1996] ECR I-5951.

2037 *Jefferson Parish Hosp Dist No 2 v Hyde*, 466 US 2, 12-18 (1984).

2038 *Fortner Enters v US Steel Corp*, 394 US 495 (1969).

2039 *Jefferson Parish*, 466 US 2, 14-15 (market power in the tying market is employed to 'impair competition on the merits in another market', thus 'increasing monopoly profits over what they would be absent the tie').

2040 *Eastman Kodak Co v Image Technical Servs, Inc*, 504 US 451 (1992).

Technological tying was found to constitute an infringement of Article 102 in the EU in the Microsoft I case, where the Commission, confirmed by the General Court of the EU²⁰⁴¹, found that Microsoft had infringed Article 102 TFEU by making supply of its client PC operating system Windows conditional on the simultaneous acquisition of its Windows Media Player (WMP) (*Microsoft I*)²⁰⁴². The Commission found four elements to a tying claim: (i) the tying and the tied products are two separate products; (ii) the undertaking concerned is dominant in the market for the tying product; (iii) the undertaking concerned does not give customers a choice to obtain the tying product without the tied product; and (iv) the practice in question forecloses competition²⁰⁴³.

A few years later, the Commission also opened investigations, following complaints in December 2007 by Opera, the Norwegian Internet browser maker, against Microsoft, sending a Statement of Objection in January 2009, alleging a violation by Microsoft of Article 102 TFEU for tying its web browser, 'Internet Explorer' (IE), to its dominant client PC operating system, 'Windows' (*Microsoft II*).

The Google Android case seems to have been somewhat different, with rather more straight-forward theory of tying as the antitrust harm compared to the *Google shooping* case. The Commission states:

"When Google develops a new version of Android it publishes the source code online. This in principle allows third parties to download and modify this code to create Android forks. The openly accessible Android source code covers basic features of a smart mobile operating system but not Google's proprietary Android apps and services. Device manufacturers who wish to obtain Google's proprietary Android apps and services need to enter into contracts with Google, as part of which Google imposes a number of restrictions. Google also entered into contracts and applied some of these restrictions to certain large mobile network operators, who can also determine which apps and services are installed on devices sold to end users."²⁰⁴⁴

The Commission Android decision concerned three specific types of contractual restrictions that Google has imposed on device manufacturers and mobile network operators which seem to show a general exclusionary business strategy amounting to an exclusionary tying abuse. The restrictions have enabled, according to the Commission, Google to use Android as a vehicle to cement the dominance of its search engine. Thus, the Android operating system was provided with the requirement to install Google search app (and Chrome browser app). In other words, the Commission decision does not question the open source model of the Android operating system as such, however, the contractual restrictions Google imposed. The Commission decision also addressed that Google made payments to certain large manufacturers and mobile network operators on condition that they exclusively pre-installed the Google Search app on their devices;

2041 Case T- 201/ 04, Microsoft Corp v Commission [2007] ECR II- 3601.

2042 Microsoft/ W2000 (Case COMP/ C- 3/ 37.792) C(2004)900 final (24 March 2004).

2043 Ibid., para. 794.

2044 Press release regarding the Commission decision of 18 July 2018 in Case AT.40099 – Google Android. http://europa.eu/rapid/press-release_IP-18-4581_en.htm

and that Google has prevented manufacturers wishing to pre-install Google apps from selling even a single smart mobile device running on alternative versions of Android that were not approved by Google (so-called “Android forks”).²⁰⁴⁵

The EU Google *Andriod* case seems to resemble the classical tying cases such as the *Microsoft* case, while it is still early to discuss the decision since no public version of the decision is yet available. Still it is unique, and has not been followed by similar cases in the US or in the BRICS countries.

7.3.5.3. BRICS

Brazil: as discussed above, the Brazilian authorities have looked into the conduct of Google. Regarding tying, CADE investigated if Google would be unduly favouring its own specific services, such as *Google Shopping*, to the detriment of price comparison sites, such as Buscapé, positioning itself in a more privileged area of the webpage (among the sponsored links). The analysis did not lead to a finding of violation. Indeed, after an extensive analysis, CADE did not identify a causal relationship between Google’s conduct and any harm to competition. CADE also understood that *Google Shopping’s* evolution throughout time showed some genuine features of innovation directed to full consumers’ and retailers’ needs. In this context, CADE’s GS dismissed the case.

Russia: The Russian Federal Law “On Protection of Competition” in part 1 of Article 10 does not explicitly mention tying and bundling in the list of abusive practices prohibited under the Law. This list, however, is non-exhaustive, and both FAS of Russia and Russian case law consider tying and bundling as illegal abusive practices prohibited under part 1 of Article 10 of the Federal Law “On Protection of Competition”.

The Google case (decision N 1-14-21/00-11-15 as of 18 September 2015) illustrates this approach. According to FAS of Russia decision, Google abused its dominant position in the market of pre-installed app stores for Android OS localized for distribution on the territory of the Russian Federation via, inter alia, bundling: (i) Google conditioned installation of Google Play on the mobile devices by pre-installation of other Google Mobile Services (‘GMS’) by manufacturers, including, for example, Google Search, Google Chrome, Gmail, YouTube, Google Drive, (ii) Google imposed on manufacturers the contractual requirement not to install apps of competitors.

FAS of Russia found that Google offered two versions of Android OS for the manufacturers: Android One (pure Android OS with no pre-installed GMS), and Android OS with pre-installed GMS. According to the survey conducted by WCIOM, Russian research company focused on surveys, buyers prefer mobile devices with pre-installed Google Play. Thus, manufacturers need to pre-install Google Play on mobile devices to make them commercially successful.

However, Google required manufacturers to pre-install GMS together with Google Play. FAS of Russia established that there was no technical reason for tying Google Play and

2045 Commission decision of 18 July 2018 in Case AT.40099 – Google Android.

GMS, as each application in GMS might operate separately, therefore, tying didn't have any objective justification.

In connection to direct tying, Google also required manufacturers not to install applications of certain competitors on mobile devices (for example, Yandex Search), thereby ensuring that these providers of the rival applications cannot enter the tied segment of the market of mobile apps and reducing their scale of operation and competitiveness. FAS of Russia concluded that Google abused its dominant position on the market of pre-installed app stores for Android OS.

India: Under the Indian Competition Law, the practices of tying and bundling are prohibited for being anti-competitive. Unlike EU and US, the two practices are distinct from one another in India. Under the Competition Act, 2002, Section 3 and 4 (corresponding to Articles 101 and 102 of the Treaty on Functioning of the European Union) deal with anti-competitive agreements and abuse of dominance respectively.

Section 3(4)(d) of the Indian Competition Act explicitly defines tie-in-arrangements as 'any agreement requiring a purchaser of goods, as a condition of such purchase, to purchase some other goods' thereby excluding bundling from its ambit'.²⁰⁴⁶

Though the Competition Act does not define bundling, the language of Section 4(2)(d) suggests encompassing bundling and reads as 'making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage have no connection with the subject of such contracts'.²⁰⁴⁷

The Commission has further recognized the distinction between tying and bundling in the follows²⁰⁴⁸:

There is a subtle difference between the two concepts of tying and bundling. The term "tying" is most often used when the proportion in which the customer purchases the two products is not fixed or specified at the time of purchase, as in a "requirements tie-in" sale. A bundled sale typically refers to a sale in which the products are sold only in fixed proportions. Bundling may also be referred to as a "package tie-in".

The case concerned with allegations against Apple for entering in anticompetitive tying agreements with its distributors that violated section 3(4)(a) of the Act and abuse of its dominant position in violation of section 4 of the Act.

With respect to bundling, although the Commission has discussed the scope of Section 4(2)(d) in various cases to indicate that the section may apply to both tying and bundling allegations²⁰⁴⁹, however in the digital context the Commission recently discussed bun-

2046 The Competition Act of India, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf

2047 The Competition Act of India, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf

2048 Competition Commission of India, Case No. 24 of 2011, available at: https://www.cci.gov.in/sites/default/files/242011_0.pdf

2049 Competition Commission of India, Case No. 104 of 2013, available at: https://www.cci.gov.in/sites/default/files/1042013_0.pdf; Competition Commission of India, Case No. 22 of 2010, available at: <https://www.cci.gov.in/sites/>

dling in the proposed combination of Bayer AG and Monsanto (both having large scale operations in the agriculture sector).²⁰⁵⁰ The commission observed that the proposed combination would lead to creation of the largest integrated agriculture company.²⁰⁵¹ The combined entity could then bundle portfolio products of the merging companies thus being able to extract premiums and exhibit a negative impact on consumers and competitors.²⁰⁵² This is likely to have an appreciable adverse effect on competition (prohibited under Section 3 of the Act) in several relevant markets in India.²⁰⁵³ Thus, the commission approved the combination subject to conditions, one relating to bundling being, 'barring the combined entity from offering its clients, farmers, distribution channels and/or its commercial partners, two or more products as a bundle which may potentially have the effect of exclusion of any competitor'.²⁰⁵⁴

China: As discussed above under BRICS leveraging, the problem of leveraging by tying in the data field has been litigated in case *Qihoo 360 v. Tencent* (for the alleged latter's abuse of market dominance), the allegation of the plaintiff Qihoo 360 company for Tencent's tying is that the "QQ software manager" is bundled with the instant messaging software "QQ" and even the "QQ doctor" will be automatically installed when the software "QQ software manager" is upgraded. The Chinese court adopted a functional standard and claimed that Tencent's tying practices in this case were anti-competitive. The reason is that the main function of QQ software is instant messaging, which is a separate software product like QQ doctor, QQ butler, security butler and other products.

A common tying practice in the data market is to bundle the sales of data sets with data analysis software. According to the functional standards established in the previous case, whether there is a functional inevitable connection or a complementary relationship between the product of data set and the analysis service of data, is the key to determine whether the two are independent single products. If the data analysis software provided by other operators in the market can also analyze and process the data set, the bundled sales of the data set and data analysis software may be identified an anti-competitive tying practice. It is sure that in specific cases, the marketing practices and the technical characteristics of the data market need to be taken into account. Perhaps one day in the future, a data transaction that does not include data analysis software may resemble a bicycle with no wheels installed. The so-called tying is no longer valid.

South Africa: As stated above, South Africa has taken a cautious approach to conduct in the digital economy. Tying is however a specific offence under South Africa Competition Act. In order to establish a contravention of section 8(d)(iii) of the Act, which sets out the prohibition against tying: (i) the respondent must be dominant (in the market of the tying product or service); (ii) the dominant firm must sell goods or services on con-

[default/files/Case22of2010OrderMemberGG.pdf](#)

2050 Competition Commission of India, Combination Registration No. C-2017/08/523, available at: https://www.cci.gov.in/sites/default/files/Notice_order_document/Order_14.06.2018.pdf

2051 Ibid.

2052 Ibid.

2053 Ibid.

2054 Ibid.

dition that the buyer purchases separate goods or services unrelated to the object of a contract, or force a buyer to accept a condition unrelated to the object of a contract; (iii) there must be anticompetitive effect in that there is evidence of actual harm to consumer welfare or it results in substantial foreclosure of the market to rivals (*Competition Commission v South African Airways (Pty) Ltd* 18/CR/Mar01); and (iv) the respondent must fail in showing that there are technological, efficiency or other pro-competitive gains which outweigh the anticompetitive effect of that conduct.

It seems likely that a hard tie would be required in order for an abusive tie to be established, although possibly an overwhelming incentive to purchase goods or services together may constitute a constructive tie. Where tying is used to maintain the quality of complementary inputs and to protect the goodwill of firms imposing the tie, it is possible that the conduct may be justified.

7.3.6 Unfair commercial terms and lock-ins

7.3.6.1. Contractual or technical lock-ins

App store contracts, platform agreements, in general, and cloud service agreements may contain potentially anticompetitive clauses. Moreover, several jurisdictions have legal systems that include rules addressing unfair competition. French, German, Japanese competition law, and even the US with Section 5 of the FTC Act, may be used to address unfair commercial terms. One advantage from the viewpoint of the enforcer, is that often unfair competition law stipulates less stringent rules regarding the need to establish dominance, and also in reference to what clauses violate competition law.

In reference to app stores, there are court cases and investigations regarding Apple charging a 30 % commission on app purchases, both in the US and in the EU. The cases in the US currently deal mainly with the issue of standing for purchasers of Apps, while the main trust in the cases is whether Apple can require all apps to be downloaded in the iTunes App Store, with a thereto connected fee of 30 %. App Store Providers beneficial treat their app stores vis-à-vis potential rivals by requiring phone manufacturer to exclusively use their app stores, or by requiring the phone manufacturers to use a package of apps, which neither the manufacturer nor the purchaser of the phone can or allowed to eliminate from the phone.²⁰⁵⁵ In the EU Apple has been accused by Spotify and other app or content providers to discriminate against their apps vis-à-vis competing services or apps that Apple produce by themselves. Moreover, the app stores agreements may contain clauses that restrict the possibility to make apps dependable of other apps. It seems that apple store holders like to prevent that apps develop to platforms for other apps since all apps should be (at least in theory) stand-alone. This prevents the possibility for app producers to create their own ecosystems of apps, connected to a platform app, being the hub of the new ecosystem.

2055 Commission decision of 18 July 2018 in Case AT.40099 – Google Android.

Moreover, platform contract and cloud agreements often do not allow business users to restrict the platform from accessing the data generated by the user or its business, do not allow the user to terminate the agreement, port data to a competing platform, or it may contain overly broad non-assert covenants. Indeed, as discussed above, the services provided by Amazon, Google and other platforms, e.g., transaction site, cloud services, may constitute an example of the problem of few platforms controlling data and possibly gaining market power due to data-driven business model. It is not uncommon that Amazon, Google and other platforms have access to most, if not all, data in their respective ecosystems, while the business users in each ecosystem have limited access even to data generated by them in the ecosystem.

A critical question is whether being a system leader and obtaining data from several participants in a market could amount to holding system market power, while not being active on those markets. Could control of data flows correspond to market power in the ecosystem and thereto connected markets.²⁰⁵⁶ For example, could a system leader having access to data from the majority of the firms active on a downstream market, be considered dominant in the upstream data market or on the product market?

The current probes by the EU Commission and the German Bundeskartellamt of Amazon may soon address issues similar to what have been described above. According to interviews with Competition Commissioner Vestager, DG Comp opened a preliminary probe into Amazon's use of data on its third-party merchants. The idea was to assess the dual role of the e-commerce giant, given that it hosts but also competes against these other merchants. There are concerns that Amazon could be using sensitive information about its competitors' products to its own advantage.²⁰⁵⁷ The German probe seem to be investigating similar conduct, all based on the notion that amazon holds market power.²⁰⁵⁸

The EU commission's *Google AdSense* case should also be mentioned. According to the Commission, Google used exclusivity or relaxed exclusivity clauses to exclude competitors such as Microsoft or Yahoo from third party platforms. Websites such as newspaper websites, blogs or travel sites aggregators often have a search function embedded. When a user searches using this search function, the website delivers both search results and search adverts, which appear alongside the search result. Through AdSense for Search, Google provides these search adverts to owners of "publisher" websites.

2056 See the US Kodak case, *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992), where the Court held that even though an equipment manufacturer lacked significant market power in the primary market for its equipment—copier-duplicators and other imaging equipment—nonetheless, it could have sufficient market power in the secondary aftermarket for repair parts to be liable under the antitrust laws for its exclusionary conduct in the aftermarket. For the EU see the Hugin case, *Hugin Kassaregister AB and Hugin Cash Registers Ltd v EU Commission*, Case 22/78, ECLI:EU:C:1979:138.

2057 See the German Competition Authorities press release: https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html?nn=3591568

2058 German Competition Authority's press release Bundeskartellamt initiates abuse proceeding against Amazon, 29.11.2018, https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html?nn=3591568

Google is thus an intermediary, like an advertising broker, between advertisers and website owners that want to profit from the space around their search results pages. Therefore, AdSense, which by far the largest firm on the relevant market, works as an online search advertising intermediation platform.²⁰⁵⁹

It was not possible for competitors in online search advertising such as Microsoft and Yahoo to sell advertising space on Google's own search engine results pages. Therefore, third-party websites represent an important entry point for these other suppliers of online search advertising intermediation services to grow their business and try to compete with Google.

Google's provision of online search advertising intermediation services to the most commercially important publishers took place via agreements that were individually negotiated. The Commission has reviewed hundreds of such agreements in the course of its investigation and found that Google first imposed an exclusive supply obligation, which prevented competitors from placing any search adverts on the commercially most significant websites. Then, Google introduced what it called its "relaxed exclusivity" strategy aimed at reserving for its own search adverts the most valuable positions and at controlling competing adverts' performance.

Also the India Competition Commission has analysed exclusivity arrangements in reference to Google Search. In *Matrimony.com Limited v. Google LLC & Ors. with Consumer Unity & Trust Society v. Google LLC & Ors.* (discussed supra),²⁰⁶⁰ the Commission enforced a fine of \$21 million on Google for search bias and abusing its dominant position in India.²⁰⁶¹ The commission observed that Google's negotiation search intermediation agreements restricted its Indian partners from using similar services provided by competing search engines.²⁰⁶² Thus, it was held that Google's conduct limited its competitor's ability to scale their operations by extending and preserving its dominance in search intermediations and thereby leading to its abuse.²⁰⁶³

If the covenants hinder the emergence of innovative technologies, or imply the exclusion of or discrimination against certain firms by preventing their effective access to the result (ie data) of the platform or pool, the competition law prohibition could be triggered.

Technical lock-ins, where a platform provider is able to refuse porting of data on the part of the user for example because data are stored in such a way that porting is impossible or excessively difficult, may be considered a violating of abuse of dominance

2059 Google was by far the strongest player in online search advertising intermediation in the European Economic Area (EEA), with a market share above 70% from 2006 to 2016. In 2016 Google also held market shares generally above 90% in the national markets for general search and above 75% in most of the national markets for online search advertising, where it is present with its flagship product, the Google search engine, which provides search results to consumers.

2060 Competition Commission of India, Case No. 07 and 30 of 2012, available at: <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

2061 Ibid.

2062 Ibid.

2063 Ibid.

rules. Such conduct can be anticompetitive, if it implies that a firm is locked-in and excluded or prevented from competing by not being able to access potential customers.

Non-assert clauses are another tool that may be used. Such clauses typically stipulate that the business user is not allowed to assert present or future patents, or other IP rights, against the platform or cloud provider, even if that party infringes said IP rights by, for example, entering the cloud user's core brick-and-mortar market.

Non-assert agreements are normally not considered anticompetitive; on the contrary they can be procompetitive and allow firms to avoid litigation, reduce transaction costs and solve problems arising from blocking patents. The non-assert obligation sometimes extends to third parties designated by a contracting party.

However, non-assert clauses may unreasonably strengthen the position of the platform or discourage innovation by limiting the exclusivity, particularly when the clauses are unlimited in scope or duration, or when their scope is more extensive than the 'value' that the platform or business user obtains by accessing the platform or cloud. Interestingly, internet ecosystem seem almost exempted from infringement litigations. Non-assert clauses have been under scrutiny by competition authorities in a few cases. In 2001, Microsoft was accused of having too wide non-assert clauses vis-à-vis OEMs of computers, implying that Microsoft gained access to all OEMs' hardware patents.²⁰⁶⁴

The more difficult issue is whether an Internet intermediate doubling as a cloud provider may be considered to violate competition law by having a data advantage and leverage that advantage when competing downstream. The advantage in data may originate from a right to access and use customers' data, and such a clause may be considered anticompetitive in certain situations, eg if done in conjunction with violating a data privacy rule (German Facebook case²⁰⁶⁵), or violating sector-specific regulation such as the upcoming P2B regulation.

7.3.6.2. Nonassertion and Nonchallenge Clauses

Although it is generally believed that non-assertion and non-challenge clauses are unique issue of anti-monopoly in the field of intellectual property, the same problem also exists in the digital economy such as big data.

Big data transactions involve large amounts of data, and before they are processed and analyzed, it is difficult to ensure that all data sets have utility value. When dynamic data becomes a transaction object, timeliness is also an important factor in setting data prices. The company might prohibit the licensee from filing a lawsuit claiming rights when its digital analysis software is suspiciously engaged in infringement, or prohibits the

2064 See Microsoft scraps clause in licensing contracts for PC firms. 9 March 2004, Computer weekly, for the EU investigation in 2001, <http://www.computerweekly.com/news/2240054971/Microsoft-scraps-clause-in-licensing-contracts-for-PC-firms>, accessed 21 March 2018.

2065 See German Competition Authority, 'Preliminary assessment in Facebook proceeding: Facebook's collection and use of data from third-party sources is abusive', 19 December 2017, <https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/19_12_2017_Facebook.html>.

transaction counterparty from challenging the validity of the data in the contract. The non-assertion/non-challenge clause helps the company maintain the “monetizing power” of the data. The market position and power obtained by the data platform with its big data advantage are improperly maintained and strengthened, which in turn causes exploitative damage to the counterparty and consumers.

China has not clearly defined the legal ownership of data, but there are many in the academic circle who believe that electronic data is the expressive or homomorphic structure of information, satisfying the formal requirements of intellectual property objects, and the data set is a new property form of intellectual property. Based on the established framework of China’s intellectual property rights, a new type of rights of intellectual property can be created--- “data right”. In addition, China’s law of IPR, such as *Patent Law* or *Copyright Law*, can provide legal protection for big data. It can be inferred that if the data platform abuses the advantages of big data and impose unreasonable trading conditions to exploit the counterparty and consumers, intellectual property abuse can be determined according to the *Anti-monopoly Law*.

With the non-assertion/non-challenge clause, data holders might use their market advantages to ensure transaction stability and maintain their market interests. But to some extent, it can help to reduce the litigation risk of transactions and enhance the willingness to authorize, thereby increasing the efficiency of data circulation and transactions and exerting a positive impact on consumer welfare. Therefore, in the analysis of the competitive effect of the non-claimed/non-challenge clause, the principle of reasonableness instead of illegality is usually applied.

In China, Article 10 (2) of the *Provisions on Prohibiting the Abuse of Intellectual Property Rights to Preclude or Restrict Competition*, released by the State Administration for Industry and Commerce (SAIC) in April 2015, deals with the issue of non-challenge in the framework of abuse of market dominance. That is, operators with market dominance, without justifiable reasons, may not “prohibit the transaction counterparty from challenging the validity of the data” in the process of exercising intellectual property rights. Article 10 of the *Anti-monopoly Guidelines of the State Council Anti-Monopoly Committee on Intellectual Property Rights*, adopted in November 2018, specifically provides for a non-challenge clause under the section of “monopoly agreement”. The provision reads as follows: “The non-challenge clause means that in the agreements related to intellectual property licensing, the licensor prohibits the licensee to object to the validity of its intellectual property rights”.

In analyzing exclusion or limitation of the market that the clause causes, the following factors can be considered: (1) whether the licensor asks all licensees not to question the validity of the intellectual property rights; (2) whether intellectual property rights involved in the non-challenge clause are licensed for free; (3) whether intellectual property rights involved in the non-challenge clause constitute barriers to entry into the downstream related market; (4) whether intellectual property rights involved in the non-challenge clause hinder the implementation of other competitive intellectual property rights; (5) whether the intellectual property license involved in the non-challenge clause

is exclusive; (6) whether the licensee suffers significant losses due to his challenge of the validity of the licensor's intellectual property rights.

Article 18 (2) of the *Guidelines* also briefly deals with the non-challenge issue in the framework of abuse of market dominance, namely, "prohibition of the counterparty from filing intellectual property infringement suits" is included in the conditions that the operators with market dominance might attach in the transaction involving intellectual property.

The above provisions and guidelines can offer inspiration of thinking and criteria for determination of exploitative abuse and imposing unfair trading conditions in the big data market.

7.3.6.3 Exploitative price discrimination

With big data, certain platforms may be able exploit customers through price discrimination. Collection and processing of customers' data help firms to better understand customers' preferences and design personalized selling strategies. The value of information may not directly be sufficient for first degree price discrimination, yet could lead to "almost perfect" discrimination.²⁰⁶⁶

The issue of perfect discrimination based on big data and algorithms has been widely discussed in academia, with different opinions whether such conduct violates competition law, or not; yet no cases have emerged. Clearly, more personalized pricing can lead to increase in profitability by exploiting asymmetric information. According to one study, Netflix employing a first-degree price discrimination strategy in setting its subscription fee (based on customer's web-browsing information), it would have increased its profit by 12.2%.²⁰⁶⁷

7.3.7. Harm to innovation

Competition Authorities often claim that harm to innovation is harm to competition, even an object restriction of competition, while it is difficult to measure harm to innovation. However, both US and EU antitrust authorities have dealt with cases and claims, where the effect that the authorities and the complainants are purporting is harm to innovation, yet they frame it differently. Generally, these cases deal with industries providing systems, where the dominant firm produces the main component of the system, to which it faces no competition, while it is competing with other firms in the production of auxiliary parts to the main component. The dominant firm pursues thereafter a business strategy where it makes innovative changes to its main component, making it no longer compatible from a technology standpoint with its rivals' auxiliary parts. Is this an antitrust violation, when for example the innovative version of the dominant firms

2066 See Ariel Ezrachi and Maurice Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy* (OUP 2016).

2067 Shiller, Benjamin, (2014), *First Degree Price Discrimination Using Big Data*, No 58, Working Papers, Brandeis University, Department of Economics and International Business School.

component now is closed or not interoperable anymore, or where there is a technology tie with the dominant firm's auxiliary components.²⁰⁶⁸

These cases are often framed as access to technology cases, or exclusionary leveraging, while the business strategy of the dominant firm – predatory innovation – often implies that the firms producing the supporting goods and services are excluded or restricted in their business endeavour. Within the dimension of digital economy, where firms are clustered in ecosystems, scenarios as the above, may very well happen. Interestingly, the Google shopping cases, litigated in several jurisdictions may be addressed from the perspective that the changes Google made to the algorithm (Panda 2.0), which Google claims contained innovation to the benefits of users of Google search, *de facto* lessen competition since competitive website were relegated in the system, while Google's own vertical search sites were not. The Google shopping case is appealed, and it will be interesting to see what the General Court and ECJ will decide on the matter.²⁰⁶⁹

In the US, there has been different views on predatory innovation. Two different lines of reasoning can be depicted under Sec. 2 Sherman Act. Firstly, a dominant firm's implementation of a product change will not be considered anti-competitive when the monopolistic firm can show some degree of innovation or a product improvement.²⁰⁷⁰ No balancing of the benefits of product improvement versus anti-competitive effects shall apply.²⁰⁷¹

In contrast, in *United States v. Microsoft Corp.*²⁰⁷², the Court of Appeals – District of Columbia Circuit has established a different test. Where likely anti-competitive effects are established, the analysis will not end with the defendant delivering its 'trump', *inter alia* an "innovation" or "product improvement defense". Rather, an alleged pro-competitive justification is weighed against any plausible pro- and anti-competitive effects. Indeed, the innovation claim needs to be analysed within the framework of a "balancing enquiry".²⁰⁷³ The US Courts are not in agreement whether to use this test.²⁰⁷⁴

Within the EU, there is no clear test for predatory innovation. Indeed, the Google shopping case can be the determining case for this. As Kerber and Schweitzer claim, a broad

2068 Mariateresa Maggolino, *Intellectual property and antitrust : a comparative economic analysis of US and EU law*, Cheltenham : Edward Elgar, cop. 2011, p. 115 et seq.

2069 For the discussion regarding Google shopping see *supra*.

2070 Cf. *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F. 2d (1979 U.S. App.), 286, 287 discussed *supra* ____; *Allied Orthopedic Appliances Inc. v. Tyco Health Care Group L.P.*, 592 F.3d 991; 2010 U.S. App., 1000.

2071 Wolfgang Kerber and Heike Schweitzer, *Interoperability in the Digital Economy* (January 31, 2017). Forthcoming in Jipitec; MAGKS, Joint Discussion Paper Series in Economics, No. 12-2017, 4, available at SSRN: <https://ssrn.com/abstract=2922515> or <http://dx.doi.org/10.2139/ssrn.2922515>

2072 Discussed *supra*.

2073 *Microsoft III*, 253 D. 3d 34, 47 ff. (D.C. Cir. 2001).

2074 Wolfgang Kerber and Heike Schweitzer, *Interoperability in the Digital Economy* (January 31, 2017). Forthcoming in Jipitec; MAGKS, Joint Discussion Paper Series in Economics, No. 12-2017, 4, available at SSRN: <https://ssrn.com/abstract=2922515> or <http://dx.doi.org/10.2139/ssrn.2922515>. US academics have split along similar lines: Some have argued for a strong presumption in favour of the legality of any type of product innovation, while others have supported the Microsoft balancing test.

er view of the European case law would suggest that the proportionality principle will play a significantly larger role in the EU as opposed to the US, but whether that will indulge the court or not is yet to be seen.

Interestingly, perhaps this line of thinking could be taken further yet. Platforms and ecosystems can be viewed as a specific tight system where the platform is the hub, and all other firms and websites are dependent on the platform and the system leader. It one way it is a joint venture including the participants to collectively develop the ecosystem. It can thus be seen as R&D collaborations, especially given the loose definition of R&D collaborations in several jurisdictions.

A platform or a cloud service agreement that explicitly or implicitly stipulates rules regarding collection, sharing or division in access to data that is used to develop the products and services further. If the collaboration lasts for a period of time and the parties to the agreement hold some degree of market power, rules that imply exclusive access for the system leader (platform provider) to data resulting from the collaboration may risk that competition law is triggered. Indeed, exclusivity clauses, where one party gets access to all data generated by a collaboration with the goal or object to advance the business or to innovate (which is often why firms collect data) may imply that the parties are agreeing not to compete in reference to innovation. That the system leader should innovate on the behalf of the ecosystem, while the other firms will become dependent on the system leader's innovation. Some guidance can be sought in for example the EU R&D block exemption that stipulates that R&D collaborators can not agree that only one party to the agreement should be granted exclusive access to the R&D result (data, know-how, etc.) generated by the collaboration. Such a clause may cause the entire agreement to fall outside the block exemption, i.e. it is considered to be anticompetitive by object under EU Competition law.

There are yet few cases concerning price discrimination using data and algorithms, and academia are somewhat split on the issue.

7.4. Comparative Analysis of Unilateral Exclusionary and Unfair Practices in Data Markets: EU, U.S. and BRICS

In order to seize the opportunities brought about by the digital revolution, all major jurisdictions are committed to the development of the big data industry, including the implementation of reasonable competition law enforcement. In May 2015, the European Commission launched the *Digital Single Market Strategy*. Anti-monopoly law enforcement in the data field is a part of the strategy implementation, aiming to remove legal and regulatory barriers, promote the free flow of data, and advance the cultivation of a unified data market. The access to and use of data are essential in the digital economy environment. To this end, it is necessary to examine market barriers caused by abuses such as data access control, interoperability barriers, and objection of sharing data.

While hosting important inputs to the digital market, the United States has adopted a cautious approach toward large Internet companies or data giants. The approach has

not prevented data giants from obtaining additional economic benefits related to economies of scale and network effects.

By following the principle of prudence, China is actively trying to promote competition law enforcement in the data field. As the fastest-growing economy in the developing countries, China has attached great importance to the big data development strategy in recent years. In 2018, China set up a new market supervision and administration bureau, which has had a positive impact on competition enforcement in the big data arena. At the same time, China's competition law enforcement agencies also stress that China's data-driven market is not yet mature. Technology development and business models have been evolving. Blunt competition enforcement interventions arising from subjective speculations of competition concerns may dampen the enthusiasm of data-driven companies in their innovations of products and business models. It may also undermine innovation-centered competition among operators. China advocates a cautious and science-based competition enforcement in this field.

The European Union and the United States have reviewed several merger cases in the field of big data and investigated the exclusive/exploitative abuses related to the data market. Comparing the competitive law enforcement in the data-driven industry in Europe and the United States, we can see that the law enforcement attitude in Europe is relatively progressive while the attitude in the United States is more conservative. This is partly due to the differences between the legislative norms and law enforcement ideas of the two major jurisdictions.

The EU competition law divides the "abuse of market dominance" into two types, namely, exclusionary abuse and exploitative abuse. This legislative approach shows a propensity of the competition law enforcement agencies of the EU and its member states to focus on market structure performance and social equality. The identification of data-related exclusionary abuses is mainly focused on the investigation of market foreclosure. When improper trading behaviors inhibit the entry or expansion of other competitors, companies with market dominance risk a finding of abuse.

When determining exploitative abuses, more emphasis is put on the consumer. Enterprises that infringe consumer interests or exploit the counterparty in unreasonable terms and conditions, in the process of data acquisition and trading, will be governed by EU competition law.

U.S.A. antitrust law has only recently sought to prioritize data markets, at least partly due to political pressure. U.S.A. antitrust law does rely to a greater extent on the self-correcting potential of markets, and it has focused on effects as delineated by price theory. The EU and U.S.A. further differ on the scope of entry barriers. Even if data qualifies as a key production factor, U.S.A. enforcers will not necessarily view it as an entry barrier.

The differences in regulatory concepts have led to different value orientations in European and American competition law enforcement. The EU believes that more control should be imposed on data-holding companies. By contrast, decisions by the United

States not to act suggest that it has viewed data-holding companies as having exercised viable rights. The agencies have not looked beyond the fact that the data-holding companies have not further increased their market power or charged higher prices to consumers.

Specifically, the differences of competition law enforcement in the two regions are mainly reflected in the following aspects: First, the manifestations of abuse are different. Refusal to supply data may be considered as an exclusionary abuse under EU competition law. If the refusal of the transaction leads to an excessive anti-competitive effect, the EU will utilize the “essential facility” doctrine. The user’s data is an important currency of the data market.

Data-holding enterprises often restrict competitors’ access to data by setting unfairly high prices. To cope with that, a unified data licensing framework should be established through competition law.

In the data field, the United States has never determined that a refusal to trade violates antitrust laws. The “essential facility” principle has limited space for application of competition enforcement practices in the United States. In addition, American law generally does not punish operators for setting high prices. A reason has been that the data market is subject to multi-homing, where consumers move to other suppliers or new competitors enter the market. In conventional markets, multi-homing causes prices to fall rapidly.

Second, the decisions on whether to obtain benefits through unreasonable transactions are different. In the *Google Shopping* case, the European Commission believed that Google committed an abuse of dominance by treating its own shopping comparison website more favorably and lowering the results of competitors. Google asserted several lines of defense: (1) consumers have low conversion costs between different websites (a click away); (2) Google was innovating new forms of algorithms creating consumer welfare, (3) Google is only using the products that are developed by itself without additional market power, (4) No extra prices are paid by consumers. The last two points have caused U.S.A. enforcers to stand down, but the above defenses have not received the support of the European Commission.

Third, there is disagreement on whether “privacy protection should be included in the competition law”. The European Data Protection Supervisor (EDPS) believes that violations of data protection regulations may constitute an exploitative abuse. The German competition law enforcement agency FCO has supported this opinion to a certain extent. By contrast, the attitude of U.S.A. competition law enforcement agencies is more conservative. In the United States, personal data or privacy is an aspect of consumer protection and should not be included in competition law, an official of the FTC said at a meeting. Exploitative behaviours are analysed in Chapter 10.

In view of the exclusionary/exploitative behavior in the field of big data, many BRICS countries still lack clear antimonopoly legal practices. With the exception of Russia which took bold action in the Google Android and Microsoft/Kaspersky Lab cases, they

all have a cautious – hands off – approach towards the digital economy. However, they are quickly engaging and they, respectively, will soon develop their own doctrines.

Indeed, despite having investigated Google and other tech firms, CADE in Brazil has adopted a cautious approach in digital markets. Practice and case law have shown that in very dynamic markets CADE is more concerned about intervening in a market when it should not have intervened (false positive error – over enforcement) than about not intervening in a market when it should have done so (false negative error – under enforcement).

Interestingly, the EU and the Brazilian Google shopping cases show many similarities, while the competition authorities reach different conclusions. The European Commission found that Google when upgrading the algorithm demoted rival comparison shopping services. According to the European Commission, Google upgraded an algorithm (known as *Panda*) to push its rival services to at least page four of the results, while Google's own comparison service was not subject to demoting and had a privileged position in the search result. Inter alia, the demotion of competing services, coupled with the promotion of Google Shopping, led to foreclosure of rivals, and the European Commission found evidence of traffic diversion and alleged causal nexus with Google's conduct.

In comparison, CADE in Brazil was unable to prove that the decrease in traffic of competing service providers was caused by Google's conduct. There was a lack of causal nexus. Moreover, the use of algorithms to demote rivals was considered scarce in Brazil.

However, on a deeper level, it seems that CADE and the European Commission applied different standards for an effects-based analysis. CADE required more evidence of (i) competitive harm and (ii) causal relation with the conduct (closer to an actual effects standard), while the European Commission applied a standard of 'potential effects' (but still going through some important analysis of actual effects). Finally, more weight given by CADE to (i) innovation and (ii) potential efficiencies/justifications in the analysis. The European Commission seems more sceptical of these effects, and tried to weigh them against potential anticompetitive effects.

In China, on January 30, 2019, the SAMR issued the *Prohibition of Abuse of Market Dominant Status (Draft for Comment)*.²⁰⁷⁵ For the first time, it was mentioned in this draft that when considering the dominance of operators of new economic formats including the Internet, it is necessary to consider the factors such as "control of data"²⁰⁷⁶, which is of great significance for data-driven enterprises or data-based business models.

2075 China's State Administration for Markets Regulation: Prohibition of Abuse of Market Dominant Status (Draft for Comment)

2076 <http://samr.saic.gov.cn/gg/201901/P020190130556260418381.pdf>, last access date, February 17, 2019. Article 7 of the "Prohibition of Abuse of Market Dominant Status (Draft for Comment)": The recognition of the operator's dominant position in the market shall be based on the following factors: (6) Other factors related to the determination of the market dominance of the operator. When deciding that new economic operators such as the Internet players have a dominant market status, In addition to considering the paragraph 1 of this article, the following factors should also be taken into account: competition characteristics, business models, network effects, technical features, market innovation, relevant data holding and market power of operators in the relevant market, etc.

Data-related monopolistic behavior has become the focus of competition law enforcement authorities. In the future, it is possible to assess the market power of enterprises through data advantages, and then analyze whether enterprises are abusing advantages of big data to exclude or restrict market competition. From the reality of China, practices on pricing discrimination, interoperability barriers, improper grasping and discriminatory supply in the field of big data may lead the authorities to initiate investigations.

For the first time, data monopoly was included in the scope of China's competition law enforcement. Only principled provisions can be stipulated in legislation. This course will allow China to accumulate relevant experience in law enforcement practices.

FAS of Russia has developed enforcement practice on abuse of dominance by digital companies. However, compared to the relevant enforcement by the EU Commission, the Russian practice is quite limited. Analysis of the cases shows that the Russian competition authority has already addressed issues of providing access to data, tying/bundling and leveraging. At the same time, there are grounds to suggest that FAS of Russia soon will develop its enforcement in the digital sector, because some of the cases are ongoing.

Enforcement practice related to digital giants raised questions of necessity to make relevant amendments to the Russian competition legislation in order to elaborate legal tools to deal with abuse of dominance by players in the digital market. In this regard, FAS of Russia prepared a draft text of amendments to the Federal Law "On Protection of Competition" (so-called the 'Fifth antimonopoly package'), which includes specific provisions on abuse of dominance. They reflect FAS of Russia's intent to add to Article 10 (Abuse of Dominant Position) of the Federal Law "On Protection of Competition" a provision on discriminatory access to data. Discussion on proposed amendments is very intense. It involves both public authorities and competition and digital experts.

In several aspects the South African approach mirrors the Brazilian, while the India Competition Authority has delivered decision and initiated an investigation into the conduct of Google.²⁰⁷⁷ From a unilateral conduct perspective, the South African Competition Commission has investigated a few cases and none of the cases led to a finding of violation. However, given the nature of the digital markets South Africa, has benefited from positive externalities arising from prosecutions in other jurisdictions (eg. global remedies in the Google case).

Indeed, all BRICS countries initially had a hands-off approach, and are now initiating more in-depth analysis of the digital economy and the large firms active in the digital economy.

A common thread in several of the investigations in the BRICS countries, as well as in the EU, is the theory that platform providers use powerful platforms to leverage power to other neighbouring markets. Here a common methodology could be pursued. In several jurisdictions, Google has been found to use its dominant position, ie platform (for example Google App store or Google search), to leverage in to other businesses.

²⁰⁷⁷ See *supra*.

Few researchers claim that such conduct will lessen in the future. On the contrary, leveraging in the digital economy will probably increase when data becomes a more prominent tool for competition, and when data and data analytics may be used. There will be more global networks and systems also in reference to brick-and-mortar products, eg. smart kitchens etc, with system leaders. The connected network industries invites systems and system leaders to develop, and conducts such a leveraging. Interoperability services migrate towards single solutions.

It is interesting to note that Competition authorities both in the BRICS countries as well as in the EU have identified firms as dominant in reference to search and other services provided in the digital economy using rather straight forward analysis taking into consideration the number of users and network effects etc. Given the discussion in this chapter, a line of reasoning that could be pursued is that dominance in reference to the digital economy, and, specifically, in reference to certain platforms could be based on a direct analysis of the service provided by the platforms, and the interaction between the platforms, respectively, and the ecosystems surrounding them. The platforms of today in several aspects generally provide the service of interoperability to the users. They provide matching service and connect users and producers, with thereto service of identifying likely purchasers and/or best choice of product or service. There is a general consensus among many in academia that interoperability services and technologies are plagued by network effect often migrate towards one solution.²⁰⁷⁸ Interoperability technology or services migrate towards one solution since network effects commands that the efficient solution is to have one service for the network. To some extent, they reflect infrastructure, similar to the 5G telecommunication technology, railways, etc. At least if the solution is able to create network effects and, the platform-service wins and tips the service market in its favour. Certain Internet services could hence be identified as an infrastructure type of global services, with thereto connected responsibilities for providing global infrastructure.

2078 It has been claimed that the information economy is populated with temporary monopolies. Hardware and software firms hold monopolies today knowing that a new technology will emerge that will topple their technology and, thus, overtake their monopoly position. In comparison, the industrial economy was, and still is, populated by stable oligopolies. The central difference between these two economies is that they have fundamentally different approaches to being successful: the driver in industrial economics is economy of scale, while the driver for the information economy is network effect. Network effects are now an old idea. Several researchers have discussed this. See Carl Shapiro and Hal R. Varian, *Information Rules* (Harvard Business School Press 1999), 173 et seq. See also Neil Gandal, 'Compatibility, Standardization, and Network Effects: Some Policy Implications', (2002) 18 *Oxford Review of Economic Policy*, 80; Michael Katz and Carl Shapiro, 'Systems Competition and Network Effects', (1994) 8 *Journal of Economic Perspective*, 93; Mark Lemley and David McGowan, 'Legal Implications of Network Economic Effects', (1998) 86 *California Law Review*, 479; Michael Schallap, 'The IPR Paradox: Leveraging Intellectual Property Rights to Encourage Interoperability in the Network Computing Age', (2000) 28 *AIPLY Quarterly Journal*, 195. For definitions of network industries and tipping, see Michael Katz and Carl Shapiro, 'Systems Competition and Network Effects', (1994) 8 *Journal of Economic Perspective*, 93, 105 et seq.; Mark Lemley and David McGowan, 'Legal Implications of Network Economic Effects', (1998) 86 *California Law Review* 479, 500 et seq.; and Mark Lemley, 'Intellectual Property Rights and Standard-Setting Organizations', (2002) 90 *California Law Review*, 1889, 1896 et seq.

Moreover, the platform markets – irrespective of hosting an infrastructure type of service or not – can, when tipping has occurred, can be defined as ‘failed’. When network effect has been able to tip the market in the favour of one service, the system leader providing that service has then gained the position of winner takes most of the platform market, and becomes the regulator of that ecosystem, implying special responsibilities to foster and uphold competition on downstream, upstream and on aftermarkets in the ecosystem. When markets have failed, competition law should be utilized to create competition ‘within’ the market, i.e. the connected ecosystem, rather than ‘for’ the platforms market.

The above analysis can possibly be conducted without the need of in-depth analysis of the fluid platform markets for attention (inter-platform competition), and could be a more straightforward analysis, focusing on whether the service provided on the relevant platform has tipped and the problems platforms create within their respective ecosystems (intra platform ecosystem). Thus, system leaders could be regarded as holding power in relation to the services provided or ecosystems without a finding of having power in platform-to-platform competition. The conclusion would be that platforms providing these services should be regarded as regulators of said ecosystems and networks. There will be little if no competition for the platforms and the system leaders, respectively, therefore have special responsibilities to create levelled playing fields in their ecosystems.²⁰⁷⁹ This could imply far-reaching responsibilities for system leaders in ecosystems.

In reference to abuse, several jurisdictions focus on leveraging, while also identifying that the contracts between firms in the ecosystems may very well include exclusivity or semi-exclusivity clauses. The abuses seem to be centred around platforms. Platforms may be used to favour or discriminate to the benefit of affiliated or directly owned firms in downstream, neighbouring or upstream markets. Indeed, platforms that have gained leading positions in the ecosystem have the power to exclude competitors or to lock-in customers or business users. In addition, their control and use of data regarding their customer and users, and their financial resources contribute to their leading roles within their respective networks vis-à-vis business users.²⁰⁸⁰ They may exploit customers and business users by utilizing business strategies of, for example, personalised pricing, and exploitative tying, or by just knowing so much more about the customers of their competitors. However, are they seen as regulators the system leaders then need to treat its business users under something akin to FRAND terms. The business users should be able to use the ecosystem on fair, reasonable and non-discriminatory terms. Has a system leader for example granted access to data to a firm in the ecosystems (subsidiary, affiliated firm or third party) on certain terms, also other firms in the ecosystem could have a right to access such datasets on something similar to FRAND terms.

2079 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 69 et seq.

2080 Rupprecht Podszun, (2017) Innovation, Variety & Fair Choice – New Rules for the Digital Economy: Expert Opinion for Finanzplatz München Initiative (FPMI). Available at SSRN: <https://ssrn.com/abstract=3243403> or <http://dx.doi.org/10.2139/ssrn.3243403>

To address the issue of platform-to-platform competition, we need to use general competition law to regulate the underlying conduct that triggers indirect (or direct) network effects and tipping, so to prevent monopolies to be created, while still not kill the incentive for firms to pursue platform-to-platform competition. Moreover, the issue is whether we should turn on the firms that gain monopoly position due to indirect network effect and tipping. They have in one sense used economy of scale to gain this position. Yet, economy of scale on digital markets does not necessarily imply lower prices or for that matter greater efficiencies. Moreover, we know that the firms that have tipped digital markets and gained market power will most likely hold on to their position because it is very difficult to break a monopoly built on indirect network effect.²⁰⁸¹

In the United States, leading politicians have in light of the power of platforms and in relation to platforms participating as sellers on their own platforms call for the break up some technology companies.²⁰⁸² Also participants in academia have expressed similar views.²⁰⁸³

A less intrusive way also suggested in the EU Commission report 'Competition policy for the digital era', to resolve the issue of whether using network effect and tipping to gain monopoly would amount to an abuse, is to utilize the principle of special responsibilities: that when a platform driven by indirect effect has been established, the system leader controlling the platform is allowed to continue having the platform, yet should be considered the regulator of the connected ecosystem or network. There will be little, if no, competition for that network or ecosystem and the system leader therefore has a special responsibility to create competition by creating a levelled playing field for downstream and connected markets, similar to that of a regulator.²⁰⁸⁴

When a system leader has obtained the status of regulator of its ecosystem a higher degree of responsibility would be applicable. A regulator needs to be fair, reasonable and apply principles of non-discrimination. Indeed, a multitude of conduct may be considered per se abuses, depending on where to draw the line and what effects need to proven: preventing interoperability, access to ecosystems or IT-systems and preventing portability of data, would be considered abuses or monopolisation under such higher degree of responsibility. Indeed, system leaders may have an obligation to welcome business users to its ecosystem, and treat them somewhat equally. Discrimination, by

2081 Jens Prüfer and C. Schottmüller, 'Competing with Big Data' (CentER Discussion Paper; Vol. 2017-007), Tilburg: CentER, Center for Economic Research.

2082 In the United States, Senator Elizabeth Warren has expressed a view in relation to platforms participating as sellers on their own platforms in a call to break up some technology companies; see Colin Lecher, Elizabeth Warren says she wants to break up Amazon, Google, and Facebook: A proposal to unwind Big Tech, (Mar. 8, 2019 <https://www.theverge.com/2019/3/8/18256032/elizabeth-warren-antitrust-google-amazon-facebook-break-up> and Nilay Patel, Elizabeth Warren Wants to Break Up Apple, too, (Mar. 9, 2019) <https://www.theverge.com/2019/3/9/18257965/elizabeth-warren-break-up-apple-monopoly-antitrust>.

2083 Lina Khan, The Separation of Platforms and Commerce (May 28, 2019). 119 Columbia Law Review 973 (2019). Available at SSRN: <https://ssrn.com/abstract=3180174>

2084 Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, Competition policy for the digital era, Final report, 2019, 69 et seq.

not creating a levelled playing field, or by not displaying similar business users, on equal term, in search results or on product/services comparison sites may be an abuse. Several of the issues raised in this chapter could be considered a violation under the wrong circumstances. Indeed, competition law could when treating system leaders as regulators create something akin to platform neutrality, similar to Internet neutrality.

Chapter 8: Algorithmic Collusion and Competition Law

Ioannis Lianos, Evgenia Montchenkova & Ekaterina Semenova with Hamid Ekbia and the BRICS teams

8.1. Can computers/algorithms collude or facilitate collusion?: setting the parameters of the problem

For many decades now, questions of a general form about the capabilities of AI systems have been asked by scientists, philosophers, engineers, business people, politicians, and even laypeople: “*Can computers do X?*,” where X varies depending on who is asking the question and when they are asking it. The scientific- and philosophically minded inquirer, for instance, finds in AI an effective tool for a scientific psychology that would explain how human minds work. To this group and early on, X stood for mental capacities such as “think,” “understand,” and “communicate,” while in later decades it represented “feel,” “socialize,” and “empathize.” The seminal paper by Alan Turing (1950), which starts with the question “Can computers think?” can be considered the founding moment of this brand of “scientific AI.”²⁰⁸⁵

Pragmatically minded engineers, artists, professionals, and entrepreneurs, on the other hand, ask more practical questions, having to do with particular feats: “Can computers prove theorems? Can they recognize faces? Can they tell the difference between an explosive mine and a rock deep down in the ocean? Can they develop expertise as a doctor or a chemist? Can they play chess, compose music, make paintings, or translate between languages?,” and, more recently, “Can they drive cars? Can they predict future criminals? Can they identify good job applicants?” The General Problem Solver (GPS) developed by Allen Newell and Herbert Simon provides a first example of this brand of “engineering AI.”

These two sets of questions represent two brands of AI, the tension between which has defined the tumultuous history of the field, driving it through summers of enthusiasm and winters of skepticism²⁰⁸⁶. Throughout the decades, these two brands have lived a tense marriage together, but a consistent trend has pushed the early scientific aspirations to the sidelines, bringing business and engineering ambitions to prominence. While the tension is still somewhat present, one can safely declare engineering AI, with a strong flavor of entrepreneurship, as the ultimate winner at this moment. The rise of Big Data and machine learning techniques under the rubric of AI has provided ample

2085 Whether or not Turing himself had a scientific goal in mind is a point of contention (Dennett 1990/2004), but that a group of AI practitioners conceived computers as research tools for a proper science of psychology is hardly debatable.

2086 See, H.R. Ekbia, *Artificial Dreams – The Quest for Non-Biological Intelligence* (CUP, 2008).

ammunition for this final victory, allowing engineers and entrepreneurs to accomplish awe-inspiring but, at the same time, disconcerting goals and milestones in areas such as stock trading, bidding, and algorithmic pricing. It is in a moment like this that legal scholars and practitioners have joined the fray, asking questions such as, “Can computers price discriminate? Can they identify monopolistic behavior? Can they collude?”

The possibility of collusion by algorithms (or algorithmic collusion) has become a topic of intense debate among scholars and practitioners of antitrust law in recent years²⁰⁸⁷. Ezrachi and Stucke have observed with regard to the impact of artificial intelligence to collusion:

‘Computers may limit competition not only through agreement or concerted practice, but also through more subtle means. For example, this may be the case when similar computer algorithms promote a stable market environment in which they predict each other’s reaction and dominant strategy. Such a digitalized environment may be more predictable and controllable. Furthermore, it does not suffer from behavioral biases and is less susceptible to possible deterrent effects generated through antitrust enforcement’²⁰⁸⁸.

The authors note ‘four non- exclusive categories of collusion— the “Messenger”, “Hub and Spoke”, “Predictable Agent” and “Autonomous Machine”’. According to Ezrachi and Stucke, ‘*Messenger*— concerns the use of computers to execute the will of humans in their quest to collude and restrict competition’; ‘*Hub and Spoke*— concerns the use of a single algorithm to determine the market price charged by numerous users’; ‘*Predictable*

2087 A Ezrachi and ME Stucke, ‘Artificial Intelligence & Collusion: When Computers Inhibit Innovation’ [2017] University of Illinois L Rev 1775. See also A Ezrachi and ME Stucke, *Virtual Competition* (Harvard University Press, 2016). See also SK Mehra, ‘Antitrust and the Robo- Seller: Competition in the Time of Algorithms’ (2016) 100 Minnesota L Rev 1323; Andreas Heinemann and Aleksandra Gebicka, “Can Computers Form Cartels? About the Need for European Institutions to Revise the Concertation Doctrine in the Information Age”, 2016 JECLAP 431; Catalin Rusu, “Eturas: Of Concerted Practices, Tacit Approval, and the Presumption of Innocence”, 2016 JECLAP 396; Nicolas Petit, “Antitrust and Artificial Intelligence: A Research Agenda”, JECLAP 2017; Ariel Ezrachi and Maurice Stucke, “Algorithmic Collusion: Problems and Counter-Measures”, paper for the OECD roundtable on “Algorithms and collusion” of 23 June 2017, at <https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WD%282017%2925&docLanguage=En>; Michal Gal (2017) “Algorithmic-Facilitated Coordination: Market and Legal Solutions”, Competition Policy International (CPI); Monopolkommission (2018), ‘Excerpt from Chapter I of the XXII. Biennial Report of the Monopolies Commission (“Competition 2018”) in accordance with Section 44 Paragraph 1 Sentence 1 of the German Act against Restraints of Competition’, available at: <http://www.monopolkommission.de>; Competition & Markets Authority (2018): Report “Pricing algorithms: Economic working paper on the use of algorithms to facilitate collusion and personalized pricing”, CMA94, 8th October, at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746353/Algorithms_econ_report.pdf; Salil Mehra, “U.S. v. Topkins: can price fixing be based on algorithms?”, 2016 JECLAP 470; Maurice Stucke and Ariel Ezrachi, “How Pricing Bots Could Form Cartels and Make Things More Expensive”, Harvard Business Review, 27 October 2016; Maurice Stucke and Ariel Ezrachi, “Two Artificial Neural Networks Meet in an Online Hub and Change the Future (Of Competition, Market Dynamics and Society)”, Oxford Legal Studies Research Paper No. 24/2017; Pierre Horna and Leonila Papa, ‘Should Competition Agencies Tackle Cross-Border Algorithmic Collusion: A Focus on Young Competition Agencies’, 1 China Antitrust Journal (2017).

2088 A Ezrachi and ME Stucke, ‘Artificial Intelligence & Collusion: When Computers Inhibit Innovation’ [2017] University of Illinois L Rev 1775, 1782.

Agent— presents a more complex scenario', in which 'humans unilaterally design the machine to deliver predictable outcomes and react in a given way to changing market conditions', however, 'with awareness of likely developments of other machines used by its competitors' and finally the '*Autonomous Machine*' where 'the competitors unilaterally create and use computer algorithms to achieve a given target, such as profit maximization', the machines, 'through self- learning and experiment', determining 'independently the means to optimize profit'²⁰⁸⁹.

Furthermore, there have been some concerns raised with regard to digital assistants, such as Watson, Deepmind, Alexa, or robo- selling to increase the power of oligopolists to charge supra- competitive prices²⁰⁹⁰. Artificial intelligence (AI) may facilitate coordination between a large number of sellers, providing them a long- term perspective on their profits, rather than a short-term one that would provide them incentives to cheat, and could also enable a more effective monitoring of the collusive outcome, as AI may be able to identify the real causes of price decreases. AI and Big Data may also augment the anti- competitive strategies by combining different sources of information (and not just price), predicting the rivals' cost curves and establishing with greater accuracy what would be the optimal strategy in the specific market circumstances. However, the ability of discriminating between different groups of consumers, or even offer personalized pricing, may lead to products that are less homogeneous, may increase product differentiation, and consequently reduce the risks of price transparency and collusion²⁰⁹¹.

Finally, the emergence of blockchain technology also raises interesting issues as to its impact on collusive activity.

Although these concerns are plainly justified, one may reformulate the original question — "Can computers collude?" — to the more pragmatically oriented question, "What would it take for computers to be able to collude?," or put differently, "What are the conditions of possibility for computers to be able to collude?" Such conditions, can be social, economic, cultural, technological, or, as is often the case, a combination of these.

2089 Ezrachi and ME Stucke, 'Artificial Intelligence & Collusion: When Computers Inhibit Innovation' [2017] University of Illinois L Rev 1775, 1783. Various scenarios of algorithmic collusion have also been examined by competition authorities: see, CMA94, Pricing Algorithms, (October 8th, 2018), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746353/Algorithms_econ_report.pdf; Algorithms and Collusion – Note by the European Commission, submitted for the OECD Competition Committee Hearings on 21-23 June 2017, DAF/COMP/WD(2017)12]. Concerns over algorithmic collusion were also raised by the members of the CJEU: See, Opinion of Advocate General Szpunar in Case C 434/15, Asociación Profesional Elite Taxi v Uber Systems Spain SL, ECLI:EU:C:2017:981, fn. 23 (noting that "the use by competitors of the same algorithm to calculate the price is not in itself unlawful, but might give rise to hub and spoke conspiracy concerns when the power of the platform increases"). Some recent economic literature has nevertheless raised questions on the capabilities of algorithms to solve the coordination problem and sustain collusion without some form of communication: see, K-U Kühn and S Tadelis 'Algorithmic Collusion, available at http://www.cresse.info/uploadfiles/2017_sps5_pr2.pdf; U Schwalbe, Algorithms, Machine Learning, and Collusion (June 1, 2018), available at SSRN: <https://ssrn.com/abstract=3232631>

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2091 S. Mehra, 'Antitrust and the Robo- Seller: Competition in the Time of Algorithms' (2015) 100 Minnesota L Rev 1323; A Ezrachi and ME Stucke, 'Is Your Digital Assistant Devious?', Competition Policy International (September 2016), available at <https://www.competitionpolicyinternational.com/is-your-digital-assistant-devious/>

The thrust of our argument, accordingly, is that the original question does not lend itself to meaningful resolution through abstract legal reasoning, or economic modeling. These approaches can *inform* our thinking but they cannot provide definitive answers to questions of jurisprudence about collusion and its evidentiary standards when it comes to algorithmic collusion.

This raises interesting questions as to the essence of machine thinking and its conceptualization as a form of cognition. According to one view, the essence of cognition, is the capacity to compute — a capacity attributed to both humans and digital machines. According to a second view, cognition is an inherent property of the human brain. As evidenced by its long and ongoing history, the debate between these essentialist positions is not resolvable for the simple reason that the two sides start with conflicting premises that are not reconcilable. This is an intellectual deadlock that legal scholars should try to avoid.

The language game of antitrust law, which has hitherto involved humans and their firms, now faces the introduction of computers/algorithms as new “players” in the game. The question facing antitrust law is how to deal with this ‘newcomer’. In other words, it should first answer the basic question of whether or not to accept computers as players before it deals with the question of their behavior. This former question has to do with the “constitutive” rules of the game — namely, those that create the game and define it, whereas the latter question has to do with the “normative” rules of the game — namely, which actions are legitimate and which are not²⁰⁹². The game’s constitutive rules take precedence because they determine the conditions of the possibility for the actions performed in the game, just as grammatical rules determine the conditions of possibility for the moves in the language games.

This chapter engages with the economic and technical literature on algorithmic collusion, with the purpose to link it with the broader theory of tacit collusion that has served as the intellectual bedrock of competition law provisions prohibiting cartels and other horizontal collusive practices. We then explore the existing legal framework in order to ascertain if this is adequate to tackle occurrences of algorithmic collusion, or if this has to be re-designed. We focus on the various initiatives of legal form in several BRICS countries and we proceed to a comparison with the approaches followed in the EU and the US. We then move to explore how blockchain technology may impact on the development of collusive strategies and the way these may fall under competition law scrutiny. The last Section examines the emergence of a technical approach in tackling algorithmic collusion, with the development of algorithmic tools by competition authorities, to detect collusion and in particular algorithmic collusion. Competition authorities may thus also employ algorithms to unveil digital cartels, so it is difficult to predict who, competition authorities or colluders, will be one step ahead, from a technology perspective.

2092 J. Searle, *The Construction of Social Reality* (Free Press, 1995).

8.2. An Economic Perspective on tacit collusion and pricing algorithms

Economists usually perceive collusion as ‘a situation where firms’ prices are higher than some competitive benchmark. A slightly different definition would label collusion as a situation where firms set prices which are close enough to monopoly prices. In any case, in economics collusion coincides with an outcome (high- enough price), and not with the specific form through which that outcome is attained [. . .] collusion can occur both when firms act through an organised cartel (explicit collusion), or when they act in a purely non- cooperative way (tacit collusion)’²⁰⁹³. For economists, collusion entails a suppression of inter- firm rivalry that leads to an outcome/ equilibrium (higher prices, lower output, lower innovation levels) that would be inferior to the outcome of ‘some competitive benchmark’. The latter concept is broad enough to cover perfect competition, workable competition or the outcome that would have existed, had the examined conduct not taken place. Hence, one may notice that the definition of collusion as a non- competitive market outcome may easily overlap with the question of defining the existence, or not, of a restriction of competition. This does not mean that the two questions are merged into one: the existence, or not, of a non- competitive outcome. It matters, of course, if this outcome is produced by unilateral effects or by coordinated effects, as economic theory distinguishes between the two types of effects. Yet, the definition of what is unilateral or coordinated/ collusive in economics and in law may not be the same, in view of the emphasis put by economics on *effects* or *outcomes* and the relatively cautious approach of the legal system with regard to the requirement of some *form* of conduct. As we will explain in 7.3. the legal approach to collusion usually requires some evidence of communication between the colluding parties, which constitutes the conduct element instigating competition law scrutiny. Communication between competitors, in particular on future their future strategy for pricing and output, is most likely to lead to negative welfare effects, while communication between non-competitors on their future strategy, for instance in a vertical context, may be justified on efficiency considerations. Usually, the welfare effects of such communication are assessed when exploring the existence of a restriction of competition, but the simple evidence of communication may be considered as a sufficient factor to trigger antitrust scrutiny.

Pricing algorithms present some interesting challenges as to the way their effects may be conceptualised according to the existing conceptual categories in both economics and in law. A pricing algorithm is a software program for determining the price of a product or service. It takes data on the market environment, such as cost, sales, inventories, or rival firms’ prices, and assigns own price.²⁰⁹⁴ The use of pricing algorithms obviously brings economic benefits to market participants. On the supply side, algorithms are used to optimize prices and quantities. Pricing algorithms can adjust prices to respond better to changing market conditions. Online retailers use software programs to moni-

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²⁰⁹⁴ For a more detailed discussion of the definition and effects of pricing algorithms see e.g. Harrington, J. E. (2019). Developing Competition Law for Collusion by Autonomous Price-Setting Agents., *Journal of Competition Law and Economics*, 14(3), pp. 331-363.

tor prices of their competitors and adjust their own prices in response to the rivals. In addition, algorithms are used to improve the quality of search results or to personalize product recommendations. Consumers also can benefit from the use of algorithms, for example through reduced search and transaction costs as possible information asymmetries between companies and customers can be reduced.²⁰⁹⁵

However, recent economic literature also raises concerns about the potential for algorithms to lead to consumer harm.²⁰⁹⁶ Consumer harm can be related to increased ability of suppliers to extract larger fraction of consumer surplus through excessive pricing or to exploit certain consumer groups through personalized pricing.²⁰⁹⁷ Pricing algorithms that are using personal information of consumers can also bring the prices very close to consumers' maximal willingness to pay effectively approaching monopoly outcome with perfect price discrimination. However, one of the main concerns in the recent economic literature relates to the possibility that pricing algorithms can create new opportunities for collusion. The OECD report published in 2017 stresses that "algorithms are changing the competitive landscape by offering opportunities to firms to achieve collusive outcomes in novel ways that do not necessarily require the reaching of an agreement in the traditional antitrust sense, or may not even require any human interaction." Economic theory suggests that there is a considerable risk that algorithms, by improving market transparency and enabling high-frequency interactions, increase the likelihood of collusion even in markets that would traditionally be characterised by fierce competition. This covers a number of potential issues including both tacit and explicit agreements.

It is also important to distinguish between the use of algorithms to monitor and enforce an existing coordinated strategy and the situations under which pricing algorithms can lead to coordinated outcomes even when each firm is using own pricing algorithms without communication with the rivals. In particular, Joseph Harrington in the article presented at the BCCELE conference in April 2019 identifies three possibilities.²⁰⁹⁸ First possibility is conventional collusion facilitated by coordination on using pricing algorithms that can be pre-programmed to use strategies that facilitate collusion. Second is collusion through third party pricing, e.g. software companies providing competing firms with similar algorithms. Third is algorithmic collusion which is facilitated solely through coordination by sophisticated pricing algorithms without explicit communica-

2095 More detailed discussion of consumer benefits and other effects of algorithms can be found in e.g. OECD (2017) report: "Algorithms and Collusion: Competition Policy in the Digital Age", Paris.

2096 Examples of economic contributions that analyse potential for consumer harm can be found in e.g. Ezrachi, A. (2015), *The Competitive Effects of Parity Clauses on Online Commerce*, Oxford Legal Studies Research Paper No. 55/2015; Ezrachi, A. and M. E. Stucke (2016), *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*, Harvard University Press, United States; Ezrachi, A. and M. E. Stucke (2017), *Two Artificial Neural Networks Meet in an Online Hub and Change the Future (of Competition, Market Dynamics and Society)*, SSRN paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2949434; Calvano, E., Calzolari, G., Denicolò, V. and Pastorello, S. (2019). *Algorithmic Pricing and Collusion: What Implications for Competition Policy?*, Review of Industrial Organization, forthcoming.

2097 See for example Competition & Markets Authority (2018): "Pricing algorithms: Economic working paper on the use of algorithms to facilitate collusion and personalized pricing", CMA94, 8th October.

2098 See article entitled "Competition Law and Pricing Algorithms" presented by Joe Harrington at the Bergen Competition Policy conference (BCCELE conference) in April 2019.

tion by humans. The first two relate to explicit collusion and can be considered illegal according to the current antitrust legislation. So the enforcement can rely on the already existing instruments. The last possibility identified by Joe Harrington is a form of tacit collusion among pricing algorithms and under current antitrust law cannot be viewed as illegal.

Moreover, both the use of algorithms to monitor and enforce existing agreements and coordination by pricing algorithms themselves not only facilitates tacit and explicit collusion but also make it more difficult to detect the violations. Detection would become more difficult as there would be fewer opportunities to obtain hard evidence. At the same time the range of detection tools available to competition authorities will have to be expanded including new software screening tools and new regulatory agencies with experience in IT and AI. These agencies should have a capacity and expertise to be able to detect, document and verify the use of prohibited algorithms or algorithms that can be potentially harmful for consumer welfare.

8.2.1. Can Algorithms Collude or Facilitate and Maintain Collusion?

8.2.1.1. Can Algorithms Facilitate Explicit Agreements?

Algorithms may be used as a tool to implement explicit collusion.²⁰⁹⁹ In this respect it is important to discuss the circumstances in which pricing algorithms could increase the stability of a collusive agreement. From an economic perspective, algorithms may make collusive agreements more stable for a number of reasons. Firstly, it can be easier to detect deviations and to respond to them in the presence of pricing algorithms. Secondly, it reduces the chance of errors or accidental deviations. Finally, it reduces agency slack in organizations.

Collusive agreements are only stable if the firms are able to detect when their partners have deviated from the collusive price.²¹⁰⁰ Without detection, one of the firms would be able to lower its price, increase its sales and therefore increase its profits without any negative consequences. This would result in a breakdown of the collusive agreement. Pricing algorithms make the detection of deviations quicker and less costly also due to the greater availability of pricing data, both in terms of speed at which it is communicated and the volume of available data. This makes it easier for competitors to detect and respond to deviations, which stabilizes collusion.

Cartel stability can also be reduced due to 'noisy price information'. This possibility has been discussed in a seminal theoretical work by Edward Green and Robert Porter pub-

2099 See for example the CMA's *Trod Ltd/GB eye Ltd* case or Competition & Markets Authority (2018): "Pricing algorithms: Economic working paper on the use of algorithms to facilitate collusion and personalized pricing", CMA94, 8th October.

2100 For detailed discussion of cartel stability and detection of deviations from collusive agreements see J. Tirole (1988), *The Theory of Industrial Organisation*, Cambridge, MIT Press or to chapter 4 in the book by Massimo Motta (2004), *Competition Policy: Theory and Practice*, Cambridge University Press

lished in 1984.²¹⁰¹ This occurs when firms in the agreement do not receive perfect information about what their co-conspirators are charging due to for example volatile demand or some other market conditions, which can reduce observability of rivals' actions. This might lead to a seller confusing a period of unusually low demand with an attempt to cheat by its cartel partner. Algorithms could make explicit collusion more stable by reducing or eliminating the possibility of such errors. The increased ease and availability of mass data collection makes it easier for firms to identify more precisely the true state of demand and to better understand their competitors pricing behaviour.

Another feature that might reduce the stability of cartels in traditional economic models is "agency slack". It is extensively discussed in the report published by the UK competition authority (CMA) in 2018.²¹⁰² The CMA report states: "This occurs when, although a collusive agreement has been agreed on between senior managers within a firm, salespeople and other non-management employees may have incentives to undermine the cartel. They may do this if they favour immediate payoffs rather than the long-term benefits of maintaining a cartel. For these reasons, they may choose to undercut the collusive price." The CMA report concludes that using algorithmic pricing reduces the possibility that agency slack will lead to the cartel breaking down, because in such an environment, where algorithms and not individual managers take pricing decisions, there is less scope for individuals within an organisation to take pricing decisions, which would contradict long term strategy developed by the higher level management.

8.2.1.2. Can algorithms result in tacit coordination?

In addition to the above described issues with explicit collusion algorithms could lead to tacit collusion, i.e. "coordinated" outcomes with higher prices even when each firm is using the pricing algorithm to make unilateral pricing decisions. In the article published in 2017 in the University of Illinois Law Review Ariel Ezrachi and Maurice Stucke describe several ways in which algorithms could result in the outcome with tacit collusion. Those are "hub-and-spoke", "predictable agent", "the computer as messenger" or "autonomous machine" models.²¹⁰³

One way in which algorithms may lead to a tacitly-collusive outcome is when sellers use the same algorithm or data pool to determine price. Effectively, the same algorithm is used to determine the market price charged by several seemingly independent market players. This is termed "hub-and-spoke" situation in the article by Ariel Ezrachi and Maurice Stucke. If multiple competitors use the same pricing algorithm, they will react in a similar way to external events, such as changes in entry, input costs or demand. Firms would be better able to predict their competitors' responses to price changes. This

2101 Green, E. and R. Porter (1984, Noncooperative Collusion under Imperfect Price Information, *Econometrica*, 52, pp. 87-100.

2102 Competition & Markets Authority (2018): "Pricing algorithms: Economic working paper on the use of algorithms to facilitate collusion and personalized pricing", CMA94, 8th October.

2103 Ezrachi, A. and Stucke, M. E. (2017), *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, University of Illinois Law Review, p.1775.

would help firms to better interpret the logic behind competitors' strategies and their price setting behaviour, which reduces uncertainty and may help sustain tacit collusion.

Another category is termed "predictable agent" in the article by Ariel Ezrachi and Maurice Stucke. Here, humans unilaterally design pricing algorithms which react to external factors in a predictable way: for example, by pre-programming algorithms to follow "tit-for-tat" strategies. Similar to before this would have the effect of reducing strategic uncertainty, which may help sustain tacit collusion. The algorithms can be programmed to monitor the market prices, rationally follow price leadership, and punish deviations from a tacit agreement. In such an environment even in the absence of explicit communication, tacit coordination appears to be more likely as the price-setting algorithms lead firms to adopt very simple, transparent, and predictable pricing behaviour (like price matching, or price cycles), which can be recognised and followed by other firms.²¹⁰⁴

The third category is often termed "the autonomous machine". In this situation competitors unilaterally design an algorithm to reach a pre-set target, such as the maximisation of profit.²¹⁰⁵ If the algorithm is sufficiently complex, it can learn by itself and experiment with the optimal pricing strategy. There is the possibility that the algorithms may find the optimal strategy to enhance market transparency and tacitly collude. The important difference with the Predictable Agent model is that the algorithm is not explicitly designed to tacitly collude, but does so itself through self-learning. It is similar to the Predictable Agent model in that it would appear difficult to categorise this as a violation of Article 101. The algorithms are not just sustaining existing coordination but generating this coordination themselves. We will come back to this issue in Section 3, where we review theoretical and experimental work on algorithmic collusion.

8.2.1.3. Can algorithms facilitate tacit collusion?

Tacit coordination (or tacit collusion) refers to an anti-competitive market outcome which is achieved without the need for explicit communication between competitors. Below, we consider the reasons why algorithmic pricing may make tacit coordination more likely. The economic literature has identified a number of factors that can influence the likelihood of collusion.²¹⁰⁶ These factors can be roughly divided into three categories (i) market structure, (ii) characteristics of the demand side and (iii) characteristics of the supply side. Examples of the market structure characteristics are number of competitors, barriers to market entry, frequency of interactions and market transpar-

²¹⁰⁴ More detailed discussion of such strategies can be found in e.g. Maskin Eric and Jean Tirole (1988), *A Theory of Dynamic Oligopoly II: Price Competition, Kinked Demand Curves and Edgeworth Cycles.*, *Econometrica*, 56(3), pp.571-599; or Klein, Timo (2018), *Assessing Autonomous Algorithmic Collusion: Q-Learning under Sequential Pricing*, Amsterdam Law School Legal Studies Research Paper No. 2018-15, June.

²¹⁰⁵ Examples of such algorithms can be found in the articles by Calvano, E., Calzolari, G., Denicolò, V. and Pastorello, S. (2018), *Artificial Intelligence, Algorithmic Pricing and Collusion.*, CEPR discussion paper 13405; and Klein, Timo (2018), *Assessing Autonomous Algorithmic Collusion: Q-Learning under Sequential Pricing*, Amsterdam Law School Legal Studies Research Paper No. 2018-15, June.

²¹⁰⁶ The extensive overview of facilitating factors can be found in chapter 6 of Jean Tirole (1988), *The Theory of Industrial Organisation*, Cambridge, MIT Press.

ency. Examples of characteristics of the demand side are developments of demand and demand fluctuations. Examples of characteristics of the supply side are degree of product differentiation, cost symmetry between the companies and intensity of innovation activities.

The OECD report published in 2017 details how the wide adoption of algorithmic pricing by the companies can result in enhanced scope for tacit collusion through greater market transparency, higher frequency of interactions and other facilitating factors. It argues that the incentive of gaining an ‘algorithmic competitive advantage’ result in an industry where all firms collect real-time data on each other and on market characteristics. This “race to the top” in term of data collection increases *market transparency*, which is the one of the main facilitating factors capable of enhancing the likelihood of collusion as well as stability of the collusive agreements that are already formed.²¹⁰⁷

Frequency of interactions is another important facilitating factor. In the past in the absence of algorithms price adjustments and their detection required a significant amount of time and resources. With the use of algorithmic pricing, firms can change the prices of their products much more frequently. As a result, when firms are tacitly colluding using algorithmic pricing, they will be able to detect and respond to deviations from collusive agreements almost immediately. In the limiting case if there is no delay before punishment is implemented, there is also no benefit to deviation and coordination can be established regardless of the market conditions and firms’ characteristics.

A further reason why algorithms may make tacit coordination more likely is that they may be more efficient at *calculating the profit-maximising collusive price* in the absence of an explicit agreement. As Salil Mehra notes in the article published in 2016,²¹⁰⁸ there may be “instances in which humans would be cognitively incapable of assessing their competitors’ responses.” In such cases algorithms may be better able to calculate the profit-maximising price and, hence, avoid undesirable deviations, which should stabilize collusion.

In addition, other factors, such as the *number of market participants*, influence the possibility of collusion. Collusion is typically easier to sustain in more concentrated markets,²¹⁰⁹ because in such markets it is easier to make agreements and monitor compliance.²¹¹⁰ The ability to quickly analyse large amounts of data using algorithms makes it easier to coordinate and monitor the behaviour of a large number of companies. Therefore algorithms can also make collusion in less concentrated markets possible.

2107 See also chapter 4 of Motta (2004), *Competition Policy: Theory and Practice*, Cambridge University Press

2108 Mehra, Salil K. (2016), *Antitrust and the Robo-Seller Competition in the Time of Algorithms*, *Minnesota Law Review*, 100, pp. 1323-1375.

2109 See chapter 4 in Motta (2004) for detailed analysis of the degree of concentration of sustainability of collusion..

2110 In practice and in the experiments with human participants collusion with higher number of players and in the absence of communication is often hard to achieve. See e.g. Fonseca, Miguel A. and Hans-Theo Normann (2012), *Explicit vs. Tacit Collusion – The Impact of Communication in Oligopoly Experiments*, DICE Discussion Paper, 2012. See also Huck, S., Normann, H.T. and Oechssler, J. (2004), *Two Are Few and Four Are Many: Number Effects in Experimental Oligopolies*, *Journal of Economic Behavior & Organization*, 53, 435-446.

8.2.2. Models of Algorithmic Collusion – Can algorithms collude?

This section gives a survey of the literature on the interaction and learning of algorithms in strategic, multi-agent environments. This is important in the context of analysis of collusion or coordination, where several firms are present and interact with each other in a market. There are different strands in the economic literature that have investigated the problem of coordination in oligopolistic markets or in similar strategic situations, such as prisoner's dilemma games. We start by reviewing relevant theoretical contributions and then move to experimental studies that analyse the behaviour of pricing algorithms powered by Artificial Intelligence and Computer Simulations.

The theoretical contributions usually analyse collusion in oligopolies in the framework of repeated games since interaction between the players in markets usually occurs repeatedly over time. In such environments, however, the problem of tractability arises. Since in complex games with many players and various strategies, it is hard to compute equilibria and, moreover, convergence to an equilibrium can take a very long time. Furthermore, even in the simplest two-player, two-strategy repeated prisoner's dilemma, the Folk Theorem shows that there are infinitely many equilibria, that cover the whole spectrum of possible types of behaviour between full cooperation on the one hand and perfect competition on the other extreme.²¹¹¹ The problem is further aggravated in a multi-agent setting.

It has been attempted in game theoretical literature to solve the problem of equilibrium selection in games by relaxing the assumption of perfect rationality. The behaviour characterized by bounded rationality was considered and complemented by the possibility of learning. There are several contributions by Ariel Rubinstein, Itzhak Gilboa or Ehud Kalai that use finite automata, which can be considered as very simple types of algorithms, to model bounded rationality.²¹¹² They study interactive situations in which players are boundedly rational. Each player, instead of optimizing uses the following choice procedure. He first associates one consequence with each of his actions by sampling (literally or virtually) each of his actions once. Then he chooses the action that has the best consequence. The authors define a notion of equilibrium for such situations and study its properties. Those contributions can be viewed at the first attempts to analyse the play of non-cooperative games and their equilibria with the help of simple algorithms playing the game as models of rational players with limited memory and reasoning capacity.

Another theoretical approach proposed in the article by Eric Maskin and Jean Tirole published in 1988 uses sequential (repeated) pricing environment, in which firms set prices

2111 See Fudenberg, Drew and Tirole, Jean (1991), *Game Theory*. MIT Press.

2112 Rubinstein, Ariel (1986), *Finite Automata Play the Repeated Prisoner's Dilemma*, *Journal of Economic Theory*, Vol. 39, pp. 83-96; Rubinstein, Ariel (1998): *Modeling Bounded Rationality*. MIT Press; Gilboa, Itzhak (1988), *The Complexity of Computing Best-Response Automata in Repeated Games*, *Journal of Economic Theory*, Vol. 45, pp. 342-352; Kalai, Ehud (1990), *Bounded Rationality and Strategic Complexity in Repeated Games*, in Tatsuro Ichiishi, Abraham Neyman & Yari Tauman (Eds.), *Game Theory and Applications*, pp. 131-157, Academic Press.

in turns and profits are realized after each turn.²¹¹³ Maskin and Tirole (1988) impose that the strategies of the firms follow the Markov assumption, where prices can only be conditioned on rivals' current prices and not on the past history. They show that in such an environment firms may charge equilibrium prices above static Nash provided they value future profits sufficiently high, which is interpreted as tacit collusion. Type of strategies analysed in Maskin and Tirole (1988) can be viewed as a simple algorithm that both players adopt and follow. More recent work described in the following paragraphs extends this approach and focuses on analysis of algorithms as collusive devices.

In a recent theoretical paper, Bruno Salcedo explores a symmetric dynamic model of price competition with two firms, where firms choose pricing algorithms simultaneously and independently at the beginning of the repeated game.²¹¹⁴ He shows that when four conditions are met simultaneously, namely, firms set prices through algorithms that can respond to market conditions, these algorithms are fixed in the short run, can be decoded by the rival, and can be revised over time, then every equilibrium of the game leads in the long run to monopolistic, or collusive, profits. These findings provide theoretical support for the idea that the optimal use of pricing algorithms is an effective tool for tacit collusion.

Experimental work also attempted to analyse sustainability of collusive strategies and speed of convergence to above-competitive prices by running experiments with pricing agents or pricing algorithms in controlled environments using computer simulations. These contributions normally look at the collusive capacity of algorithms equipped with certain strategies such as 'win-continue lose-reverse' algorithm or 'match low price' (tit-for-tat) algorithm or more advanced type of strategies. More recently, the so-called reinforcement learning received substantial attention in economics literature. Reinforcement learning is the type of machine learning in which agents learn from interacting autonomously with their environment. Q-learning is a popular example of a simple but well-established reinforcement learning algorithm. Q-learning aims to maximize the present value of future rewards for unknown environments with repeated choice. After choosing a price based on current competitor price, algorithm observes own realized profits and competitor response and updates recursively the expected sum of future discounted profits from choosing the price it did. In setting its price, Q-learning makes a continuous trade-off between the perceived optimal price and experimenting with different prices.²¹¹⁵

Among experimental contributions using computer simulations Gerald Tesauro and Jeffrey Kephart in sequential price competition environment show how Q-learning can converge to profitable asymmetric price cycles.²¹¹⁶ They also show that cycles become

2113 Maskin Eric and Jean Tirole (1988), A Theory of Dynamic Oligopoly II: Price Competition, Kinked Demand Curves and Edgeworth Cycles., *Econometrica*, 56(3), pp.571-599.

2114 Salcedo, Bruno (2015), Pricing Algorithms and Tacit Collusion, WP, Pennsylvania State University..

2115 For more detailed discussion of Q-learning see Klein, Timo (2018), Assessing Autonomous Algorithmic Collusion: Q-Learning under Sequential Pricing, Amsterdam Law School Legal Studies Research Paper No. 2018-15, June.

2116 Gerald Tesauro and Jeffrey O. Kephart, (2002), Pricing in Agent Economies Using Multi-Agent Q-Learning, *Autonomous Agents and Multi-Agent Systems*, 5, pp 289-304.

shorter and profits increasing if products are more differentiated or consumers are less informed. They require full knowledge of the environment and rival learning. In the quantity competition environment other experimental studies find that a “win-continue-lose-reverse” rule provides joint-profit maximizing convergence.²¹¹⁷ Ludo Waltman and Uzey Kaymak show that Q-learning algorithms may collude on lower quantities, implying higher consumer prices and higher profits.²¹¹⁸ The average profit gain in their experiment is around 60%. Nevertheless, it should be mentioned that Timo Klein (2018) points out that many of these results are either not robust to small fluctuations in the payoff function or do not seem to be based on equilibrium behaviour.

Another recent paper by Timo Klein performs computer simulations in an environment similar to that analysed in Maskin and Tirole (1989).²¹¹⁹ He demonstrates that pricing ‘Q-learning’ algorithms are able to learn to collude on prices. The experiment is performed in a stylized duopoly environment with a homogeneous good, unrestricted production capacity, and with repeated sequential price competition. The results show that independent ‘Q-learning algorithms’ are able to achieve higher-than static prices and profits.²¹²⁰ In his baseline case the levels of profits are roughly midway between the static Bertrand-Nash level and the collusive level. The average profit gain is around 50%. Enlarging the set of actions (possible prices) increases the average profit gain.

In a similar experimental work Emilio Calvano and others analyse whether pricing algorithms can learn to collude and whether pricing algorithms can sustain collusion more often than humans.²¹²¹ They study experimentally the behaviour of algorithms powered by Artificial Intelligence (Q-learning) in a workhorse oligopoly model of repeated price competition. They find that the algorithms consistently learn to charge supra-competitive prices, without communicating with one another. The high prices are sustained by classical collusive strategies with a finite phase of punishment followed by a gradual return to cooperation. The algorithms learn these strategies purely by trial and error, without such strategies being pre-programmed in the design of the algorithm. This finding is robust to asymmetries in cost or demand, changes in the number of players, and various forms of uncertainty. Analysis in Calvano et al. (2018) also suggests that not only pricing algorithms are able to learn to collude, but that they may be better than humans at colluding tacitly. The experimental literature with human participants has consistently found that human subjects are hardly able to coordinate without explicit communication or in a setting with more than two players (see e.g. Huck et al. (2004)).²¹²²

2117 Huck, S., Normann, H. T. and Oechssler, J. (2003), Zero-Knowledge Cooperation in Dilemma Games., *Journal of Theoretical Biology*, 220, pp.47-54.

2118 Waltman, Ludo and Kaymak, Uzey, (2008), *Q-learning agents in a Cournot oligopoly model*, *Journal of Economic Dynamics and Control*, 32, p. 3275-3293.

2119 Klein, Timo (2018), *Assessing Autonomous Algorithmic Collusion: Q-Learning Under Short-Run Price Commitments*. TI discussion paper.

2120 The learning algorithm applied here is a novel adaptation of Q-learning to sequential interaction.

2121 See Calvano, E., Calzolari, G., Denicolò, V. and Pastorello, S. (2018). *Artificial Intelligence, Algorithmic Pricing and Collusion.*, CEPR discussion paper 13405.

2122 Huck, S., Normann, H.T. and Oechssler, J. (2004), Two Are Few and Four Are Many: Number Effects in Experimental Oligopolies, *Journal of Economic Behavior & Organization*, 53, 435-446.

While analysis in this paper shows that some degree of algorithmic (tacit) collusion can still be sustainable in these less favourable setting.

Calvano et al. (2018) also distinguish between ‘adaptive algorithms’ and ‘learning algorithms’. They stress that the biggest challenges to current competition legislation and policy come from the latter. They stress that learning (pricing) algorithms are ‘active learners’, as they are ‘willing’ to adopt strategies that may be suboptimal so as to learn from experience. A learning algorithm “*learns to play optimally from experience*”, which gives such algorithms an advantage over adaptive algorithms in more complex environments. This also allows them to reach a collusive equilibrium without being designed to do so.

To summarise the above discussion we can conclude that existing theoretical models and experimental studies of algorithmic collusion reveal that it is possible for firms using pricing algorithms to reach and sustain collusive outcomes. The algorithms do not even have to be highly complex. Simple ‘win-continue lose-reverse’ algorithms and ‘match low price’ (tit-for-tat) algorithms have been shown to be capable of sustaining collusion. This result has been articulated in Huck et al. (2003).²¹²³ Contributions by Timo Klein (2019) and Emilio Calvano and others (2018) analyse more advanced algorithms using Q-learning techniques. They also show that such algorithms are capable to sustain near collusive (but not fully collusive) outcomes.

8.2.3. Conditions in which Algorithmic (tacit/explicit) Collusion may successfully happen

We can conclude that in markets, which have features that are already viewed as favourable for coordination, algorithmic pricing is more likely to facilitate collusion. These market features, which are also referred to as standard facilitating factors, have been discussed in the book by Massimo Motta published in 2004. Those are high market transparency, high frequency of interactions, low number of competitors, homogeneous products, high observability and high entry barriers. For these markets, the increase in the use of data and algorithmic pricing may be the trigger that could allow suppliers to move to a coordinated equilibrium.

The use of algorithms could also have an impact on the nature of collusion. Especially tacit collusion could occur more frequently in the future because algorithms reduce the need for explicit agreements between companies. In markets, where it is harder to sustain explicit collusion, such as less concentrated markets, markets with differentiated products or more volatile demand, explicit collusion would be replaced by algorithm-based tacit collusion. Moreover, since explicit collusion can also be facilitated by algorithms the overall effect would be an increase in both explicit and tacit collusion.

²¹²³ Huck, S., Normann, H. T. and Oechssler, J. (2003), Zero-Knowledge Cooperation in Dilemma Games, *Journal of Theoretical Biology*, 220, pp.47-54.

In particular in data-intensive sectors such as the digital economy, the use of algorithms can facilitate collusion by automating collusive behaviour and effectively accelerating it. As indicated in the report of the German Monopolkommission published in 2018:²¹²⁴ “algorithms can be designed to give signals to competitors to increase prices. Algorithms can also help to stabilize collusion by collecting information on competitors’ prices and sanctioning deviations from collusive market outcomes more quickly.”

The type and the nature of algorithms used by the companies also can play a significant role. As identified in the work by Emilio Calvano and others (2018) ‘learning algorithms’ pose the biggest challenges to current competition legislation and policy as these algorithms can adopt strategies that may be suboptimal so as to learn from experience. This also allows them to identify the right collusive strategies and following those strategies reach a collusive equilibrium without being designed to do so.

8.3. A Legal Perspective: is the current antitrust law fit for purpose?

Competition law provisions regarding collusive practices, such as Section 1 of the Sherman Act or Article 101 TFEU, traditionally require for a specific conduct to fall under the conceptual category of collusion, or the operational concepts used in the specific legal system to represent different forms of collusion, such as in EU competition law, agreement, concerted practice, or decision of association of undertakings, that there has been some communication between the parties, or that the undertaking(s) involved was at least aware of the conduct planned or put into effect by other undertaking(s) in pursuit of the same objectives or that it could reasonably have foreseen it and that it was prepared to take the risk²¹²⁵. The requirement of some form of conduct from the undertakings involved, and most often some communication between them, may be explained by the tort-law nature of competition law, which requires the identification for the purposes of determining and ascribing liability some fault (including negligence). One may not extend competition law liability too broadly so as to curtail the ability of an undertaking to unilaterally determine the prices it wishes to charge on the market, or its capacity to respond to the pricing strategies of its competitors. This emphasis on some form communication, direct or indirect, has led to a virulent debate on the merits of a communications-based versus an effects-based approach in defining collusion. To the extent that the requirement of communication may limit the possibilities of expanding the scope of the competition law to situations of algorithmic collusion, we need to look closely to this discussion.

2124 See Report of the German Monopolkommission: Algorithms and collusion. Excerpt from Chapter I of the XXII. Biennial Report of the Monopolies Commission (“Competition 2018”) in accordance with Section 44 Paragraph 1 Sentence 1 of the German Act against Restraints of Competition. The full Report (in German) is accessible at: <http://www.monopolkommission.de>

2125 See, for instance, Joined Cases T- 204 & 212/ 08, Team Relocations NV and Others v Commission [2011] ECR II– 3569, para 35.

8.3.1. Communications-based v. effects-based approaches in defining collusion

In some scholarly work dating from the 1960s, US judge and professor at the University of Chicago Law School Richard Posner has famously argued that oligopolistic price coordination should be considered as an agreement and fall under the scope of Section 1 of the Sherman Act²¹²⁶. Posner lamented “the process by which the rule against price fixing was virtually emptied of any economic content, to become in effect a branch of the criminal law of conspiracies and attempts”, as “it rendered antitrust enforcers virtually helpless to deal with any case of collusive pricing in which the conspirators did not leave behind them a visible trail of communications or acts of concealment”²¹²⁷.

Posner criticized the position of economist Donald Turner, later an Assistant Attorney General in charge of the Antitrust Division of the US Department of Justice, who argued that oligopolistic pricing was inherent in the structure of highly concentrated markets and could not be prevented without changing market structure²¹²⁸. Turner was influenced by Edward Chamberlin’s insights on the existence of oligopolistic interdependence²¹²⁹, who had put forward that conscious parallelism between competitors and identical prices were to be expected in an oligopoly situation, without “overt communication or agreement, but solely through a rational calculation by each seller of what the consequences of his price decision would be, taking into account the probable or virtually certain reactions of his competitors”²¹³⁰. Turner explains that

“(i)n a significant sense, the behavior of the rational oligopolist in setting his price is precisely the same as that of the rational seller in an industry consisting of a very large number of competitors. Both are pricing their products and determining their output so as to make the highest profit, or suffer the least loss, that can be obtained in the market conditions facing them. The rational oligopolist simply takes one more factor into account- the reactions of his competitors to any price change that he makes. He must take them into account because his competitors will inevitably react [...] [I]t can fairly be said that the rational oligopolist is behav-

2126 R.A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, (1969) 21 *Stanford Law Review* 1562. It is reminded that Section 1 of the Sherman Act forbids contracts, combinations, and conspiracies in restraint of trade.

2127 R.A. Posner, *Oligopolistic Pricing Suits, the Sherman Act, and Economic Welfare: A Reply to Professor Markovits*, (1975) 28 *Stanford Law Review* 903, 904. According to Posner, “whether a case involves oligopolistic pricing without explicit collusion, or overt conspiracy under such favorable conditions as to generate no evidence of conspiracy, is a distinction without a policy difference”.

2128 D.F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, (1962) 75 (4) *Harvard Law Review* 655.

2129 E.H. Chamberlin, *The Theory of Monopolistic Competition* (Harvard University press, 1933, 1948), 48, defined this situation as following: “(i)f each [seller] seeks his maximum profit rationally and intelligently, he will realize that when there are only two or a few sellers his own move has a considerable effect upon his competitors, and that this makes it idle to suppose that they will accept without retaliation the losses he forces upon them. Since the result of a cut by any one is inevitably to decrease his own profits, no one will cut, and although the sellers are entirely independent, the equilibrium result is the same as though there were a monopolistic agreement among them”.

2130 D.F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, (1962) 75 (4) *Harvard Law Review* 655, 661.

ing in exactly the same way as is the rational seller in a competitively structured industry; he is simply taking another factor into account, which he has to take into account because the situation in which he finds himself put in there"²¹³¹.

Similar reasons pushed Turner to agree with Carl Kaysen's view that there should not be agreement in the situation of price leadership, where each seller decides that it will be better for him to follow the single judgment of a price leader, or a succession of price leaders, which are usually the dominant and the low-cost firms, even if he disagrees with it²¹³².

Turner considers that such behavior may theoretically be qualified as either individual behavior (although interdependent) or as an "agreement". Yet, he chooses the first option, mainly for the following reasons. First, he thinks it is questionable to call the behavior of oligopolists in setting their prices unlawful when the behavior in essence is identical to that of sellers in a competitive industry"²¹³³. Second, in view of the fact that monopoly and monopoly pricing are not unlawful per se under US antitrust law, "neither should oligopoly and oligopoly pricing, absent agreement of the usual sort" as "(i) t would make no sense to deprive lawful oligopolists – those who have achieved their position by accidental events or estimable endeavor – of the natural consequence of their position if the lawful monopolist is left with his"²¹³⁴. Third, "to hold unlawful the charging of a monopoly price by a monopolist, or the maintaining of noncompetitive prices by oligopolists, would be to invoke a purely public-utility interpretation of the Sherman Act", which Turner finds objectionable, as it is implausible to conclude that Congress intended the courts, under the Sherman Act, to act as price regulators for all businesses possessing substantial monopoly power"²¹³⁵. Finally, for Turner, it was futile to expect an injunction against oligopolistic pricing to be effective, as such an injunction would command the oligopolists to behave irrationally by ignoring the effect of a price cut by one seller on the price and output of the others, would transform courts to public utility commissions and would impose "immense" practical problems, as the courts would have to enjoin undertakings to produce at marginal costs, which are either "theoretically indeterminate", in particular in cases of joint products²¹³⁶, or "practically indeterminate"²¹³⁷.

One may also note the criticisms of Rahl who argued for a requirement of proving an actual agreement for Section 1 to apply, in view of the fact that the Sherman Act is a penal statute²¹³⁸.

2131 Ibid., 666.

2132 Ibid., 664-665.

2133 Ibid., 666.

2134 Ibid., 668.

2135 Ibid., 669.

2136 These are products that are produced from the same process or operation (i.e., beef meat and leather) and therefore share a common marginal cost curve.

2137 D.F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, (1962) 75 (4) *Harvard Law Review* 655, 670.

2138 J. Rahl, *Price Competition and the Price Fixing Rule-Preface and Perspective*, (1962) 57 *Northwestern University Law*

Turner was conscious of the fact that market power created by jointly acting oligopolists may escape the scope of Section 1 of the Sherman Act²¹³⁹. However, he objected to the application of Section 1 of the Sherman Act, in view of the difficulty to devise a limiting principle to the prohibition rule. According to Turner,

“(c)hanging conditions and a growing economic sophistication have put heavy pressures on a statute drafted with different circumstances and simpler conceptions in mind; and there have been the usual counter-pressures to keep a statute, particularly a statute that is criminal as well as civil, within at least some traditional bounds. Inevitably the courts have had to struggle with the unhappy dilemma of either drawing lines between different forms of conduct having virtually identical results, or treating different forms of conduct as being the same despite the differences”²¹⁴⁰.

Yet, he considered that other institutional alternatives may offer a solution to this “oligopoly problem”, in particular by attacking such conduct with an unlawful “attempt to monopolize” under Section 2 of the Sherman Act, or with a violation of Section 5 of the FTC Act, which proscribes unfair methods of competition²¹⁴¹. An active merger policy could also provide some prophylactic remedies to the emergence of oligopolies and oligopolistic interdependence²¹⁴². By rejecting inter-dependence as a criterion for the definition of the concept of “agreement” (collusion) under Section 1 of the Sherman Act, Turner indirectly favored the view that would find “agreement” only if there has been some form of communication between the undertakings in question²¹⁴³.

Turner’s view was compatible with the Structure-Conduct-Performance School dominant at the time in US antitrust, which favored structural remedies, the break-up of monopolies and a more expansive enforcement of Section 5 of the FTC Act and Section 2 of the Sherman Act, also to situations of “shared monopoly”. On the basis of this declaration of the inability of Section 1 of the Sherman Act to deal with the “oligopoly problem” and the difficulties of expanding the scope of both Sections 5 of the FTC Act and 2 of the Sherman Act, the White House Task Force on Antitrust Policy (The Neal report in 1968)²¹⁴⁴, and Industrial Re-organization Act proposed by Senator Philip Hart

Review 137, 147.

2139 In his seminal work with Carl Kaysen, in 1959, he concluded as following: “(t)he principal defect of present antitrust law is its inability to cope with market power created by jointly acting oligopolists [...] [W]e believe it is safe to say that a considerable number of industrial markets exist in which oligopolists, acting jointly, possess substantial degrees of market power, which they exercise without engaging in conduct violating the Sherman Act”: C. Kaysen & D.F. Turner, *Antitrust Policy: An Economic and Legal Analysis* (Harvard University press, 1959), 110.

2140 D.F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, (1962) 75 (4) *Harvard Law Review* 655, 656.

2141 *Ibid.*, 682. Turner, however, accepts the application of Section 1 of the Sherman Act to “agreements or understandings designed to convert an imperfect oligopoly pricing pattern into a perfect one by eliminating uncertainties”. *Ibid.*, p. 673.

2142 C. Kaysen & D.F. Turner, *Antitrust Policy: An Economic and Legal Analysis* (Harvard University press, 1959), 132-133.

2143 In his article, Turner distinguished the situation of horizontal and vertical agreements, his criticism over a theory based on inter-dependence only applying to horizontal collusion.

2144 Phil C. Neal, William F. Baxter, Robert H. Bork & Carl H. Fulda, ‘Report of the White House Task Force on Antitrust Policy’, (1968) 2 *Antitrust Law and Economics Review* 11.

in 1972²¹⁴⁵ suggested the targeted breakup of tightly oligopolistic industries, a prospect that was heavily opposed by antitrust conservatives, influenced by the Chicago school of antitrust economics, whose intellectual influence began to rise in the 1970s²¹⁴⁶.

Richard Posner, as the rest of the Chicago school, were largely opposing the more regulatory approach of breaking up oligopolies followed by the Neal report and Senator Hart, and advanced the view that the oligopoly problem should be dealt under Section 1 of the Sherman Act with behavioral remedies, which was thought of as a more acceptable, because more limited, form of State intervention, in comparison to the structural break-up favored by Turner and the antitrust hawks. Drawing on the work of Chicago economist George Stigler on oligopoly theory²¹⁴⁷, who showed that there are incentives to undercut any above-competitive price, as a rival may “cheat” by lowering prices so as to “steal” market share from its competitors before being detected, Posner argued that “voluntary actions by the sellers are necessary to translate the bare condition of an oligopoly market into a situation of noncompetitive pricing”²¹⁴⁸. According to Posner, “the attractiveness and feasibility of a price-fixing scheme to the sellers in a market are limited by the costs of bargaining to agreement and of enforcing the agreement to prevent cheating”²¹⁴⁹. Hence, contrary to what was thought by Turner, the oligopolist has a “real choice” as it is not irrational for him to decide to set a price that approximates marginal cost, this not being unprofitable in view of the lag between “cheating” (lowering the price to marginal costs) and detection by the other cartelists²¹⁵⁰.

Against the fatalism of the structuralist approach followed by Turner, as the action of the undertakings was pre-determined by the situation of the market, Posner espoused a behavioural approach that emphasised the role of individual agency, even in the context of oligopolistic markets²¹⁵¹. Posner concluded that “oligopolists cannot be presumed always or often to charge supracompetitive prices” but “(l)ike atomistic sellers they must [...] collude in one fashion or another” and that it seems “improbable that prices could long be maintained above cost in a market, even a highly oligopolistic one, without *some* explicit acts of communication and implementation”²¹⁵². Such acts do not only comprise explicit acts of collusion or enforcement, but also a tacit understanding or other forms of “tacit collusion”. For Posner, as “tacit collusion” is “voluntary behaviour”, it should be punished by “appropriate punishment”, like express collusion, as it is as a form of con-

2145 S. 3832, 92nd Congress, 2nd Session (1972).

2146 Turner was an antitrust moderate and did not necessarily adhere to the approach of the Neal Report and the proposed legislation by Senator Hart. Yet, because his article raised the issue of the “gap” in the enforcement of Section 1 of the Sherman Act that had initiated this process of reform of competition laws towards the sense of de-concentration through specific anti-oligopoly legislation, it was attacked by the antitrust conservatives of the Chicago school, such as Richard Posner.

2147 G. J. Stigler, A Theory of Oligopoly, (1964) 72(1) Journal of Political Economy 44.

2148 R.A. Posner, Oligopoly and the Antitrust Laws: A Suggested Approach, (1969) 21 Stanford Law Review 1562, 1575.

2149 Ibid., 1571.

2150 Ibid., 1571.

2151 R.A. Posner, Oligopoly and the Antitrust Laws: A Suggested Approach, (1968) 21 Stanford Law Review 1562, 1592, noting that “(t)acit collusion is not an unconscious state”.

2152 R.A. Posner, Oligopoly and the Antitrust Laws: A Suggested Approach, (1968) 21 Stanford Law Review 1562, 1574.

certed rather than unilateral activity²¹⁵³. Yet, for both forms of collusion, Section 1 of the Sherman Act emerges as *prima facie* the appropriate remedy.

The main difference between “explicit cartels” and “tacit collusion” is that the latter may be more easily concealed, that is a question of proof.²¹⁵⁴ Although he concedes that proving tacit collusion will be difficult, he provides a laundry list of factors that, according to him, may provide evidence of tacit collusion and non-competitive pricing. Posner nevertheless notes that courts will have to exercise extreme care in drawing inferences of tacit collusion from conduct and suggests to “limit inquiry by and large to conduct-how the firms behave-and more narrowly still to conduct from which an absence of effective competition can be inferred: cartel-like conduct”. Turner’s argument on the absence of an appropriate remedy under Section 1 of the Sherman Act is also rejected as not being fatal to a rule forbidding tacit collusion under section 1 of the Sherman Act, in view of the deterrence provided by private treble-damage actions and other Section 1 behavioral remedies. Posner criticised, however, structural remedies, such as the break-up of oligopolies, imposed either through specific legislation or through a more active merger policy against horizontal mergers²¹⁵⁵. In conclusion, for Posner, “if a firm raises price in the expectation that its competitors will do likewise, and they do, the firm’s behavior can be conceptualized as the offer of a unilateral contract that the offerees accept by raising their prices”²¹⁵⁶.

The interpretation of Section 1 of the Sherman Act by US courts has moved to a certain extent in the direction of Turner, although taking a more conservative approach as to the reach of US antitrust law in situations of “tacit collusion”. Although in its seminal case *American Tobacco* in 1946 the US Supreme Court took a broad perspective on the concept of collusion, establishing the basis for an unlawful conspiracy to be inferred circumstantially from the conduct of the relevant oligopolists without direct evidence of formal agreements²¹⁵⁷, the Court refused so far to expand the scope of Section 1 of the Sherman Act in order to cover “mere interdependence” or “tacit collusion”²¹⁵⁸. US anti-

2153 Posner was thus able to infer a “meeting of the minds”, referring to game theory Through the element of conflict, mutual dependence, kind of collaboration and mutual accommodation the oligopoly “game” leads undertakings to communicate by hint and by suggestive behaviour. R.A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, (1968) 21 *Stanford Law Review* 1562, 1576, footnote 39.

2154 R.A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, (1968) 21 *Stanford Law Review* 1562, 1575.

2155 It is interesting to note Posner’s assumptions justifying his preference for behavioural remedies: the fact that “behavioral and prophylactic antitrust remedies such as penalties and injunction are swift and relatively costless compared to dissolution proceedings” and the idea that that market processes will usually eliminate an unmeritorious (single or joint) monopoly position: R.A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, (1968) 21 *Stanford Law Review* 1562, 1597-1598.

2156 *In Re High Fructose Corn Syrup Antitrust Litigation Appeal of A & W Bottling Inc et al*, U.S. Court of Appeals, 295 F3d 652, (7th Cir., 2002).

2157 *American Tobacco Co. v. United States*, 328 U.S. 781, 810 (1946), noting that conspiracy requires only “a unity of purpose or a common design and understanding, or a meeting of minds in an unlawful arrangement”. See also *Interstate Circuit v. United States*, 306 U.S. 208, 226-227 (1939).

2158 See, for instance, *Theatre Enterprises v. Paramount Film Distribution Corp.*, 346 U.S. 537 (1954); *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007), 554, the Supreme Court noting that “the inadequacy of showing parallel conduct or interdependence, without more, mirrors the ambiguity of the behaviour, consistent with conspiracy, but just as much in line

trust law has not also taken the complementary steps suggested by Turner in order to fill this perceived “gap”, as some efforts to use Section 5 of the FTC Act against “shared monopoly” failed²¹⁵⁹. Yet, it is possible to bring in a Section 5 FTC case against “facilitating practices” even in the absence of proof of conspiracy or, more generally communication, if conscious parallelism produces anticompetitive effects, under certain specific circumstances²¹⁶⁰.

As something more than parallel pricing is required in order to establish the existence of a concerted practice, courts and competition authorities focus on the features of the specific market and other ‘plus factors’. The approach followed consists in attacking indirectly the occurrence of supra-competitive pricing, by focusing on the plus factors that contribute to its occurrence, in general. Hence, these plus factors may constitute competition law infringements. This is possible for certain categories of the plus factors (in particular those that can be characterised as endogenous) but not for all. For instance, it would be difficult to establish liability for a supracompetitive price in an oligopolistic market that results from independent individual reactions to an exogenous change in market supply or demand conditions. Furthermore, elaboration of a list of plus-factors may incur two series of problems as Kovacic et al. indicate:

‘One problem involves the absence of a methodology for ranking plus factors according to their likely probative value. The second problem arises from the suggestion in the economics literature regarding repeated games that market outcomes associated with collusive schemes can result from interdependent, consciously parallel conduct in some industries. [...]

First, courts have failed to present a hierarchy of such factors and to establish an analytical framework that explains why specific plus factors have stronger or weaker evidentiary value. Antitrust agreement decisions rarely rank plus factors according to their probative merit or specify the minimum critical mass of plus factors that must be established to sustain an inference that conduct resulted from concerted acts rather than from conscious parallelism. A relatively small number of judicial opinions have extensively and skillfully evaluated the economic significance of each factor. These opinions stand in contrast to decisions that either fore-

with a wide swath of rational and competitive business strategy unilaterally prompted by common perceptions of the market”. Furthermore, the Court has created a number of procedural hurdles to “hedge against false inferences from identical behaviour at a number of points in the trial sequence”.

2159 See, for instance, the Breakfast cereal case brought by the FTC in 1972 against the breakfast cereal oligopoly, alleging that the undertakings in question enjoyed a “structural shared monopoly” position, maintained through the erection of barriers to entry by a number of marketing strategies employed by all the undertakings, such as the proliferation of brands or the promotion of trademarks through intensive advertising. The case was finally dismissed in 1981, following political opposition in Congress and by the Reagan administration.

2160 See, for instance, *E.I. Du Pont de Nemours & Co. v. FTC*, 729 F.2d 128 (2nd Cir. 1984) where although the court of appeal dismissed the case, it acknowledged that Section 5 of the FTC Act can be violated by “non-collusive, non-predatory and independent conduct of a non-artificial nature, at least when it results in a substantial lessening of competition if “some indicial of oppressiveness” exist, such as evidence of anticompetitive intent, or the absence of an independent legitimate business reason for the conduct.

go a careful discussion of the economic meaning of individual plus factors or attempt such an inquiry without a sure grasp of the economic concepts in question. Such tendencies make judgments about the resolution of future cases problematic and give an impressionistic quality to judicial decision making on agreement related issues. [...]

The second problem results from the development of new arguments, rooted in the modern economics literature dealing with repeated games that market performance associated with collusive schemes can result from interdependent, consciously parallel conduct in some industry settings. Firms in a number of industry settings may be able to achieve collusive outcomes without resorting to conduct that might be characterised as an agreement [or concerted practice]²¹⁶¹.

Commenting on the case law of the US courts, the authors find that '[t]he variation in judicial analyses of plus factors also suggests that the outcome in many agreement cases depends on the Court's unarticulated intuition about the likely cause of observed parallel behavior'.²¹⁶² The authors proceed by putting forward a taxonomy of 'super plus factors', that is, market conditions and conduct that create a 'strong inference of explicit collusion'²¹⁶³, and indicate their respective evidential weight in a finding of concerted practice/agreement. From this perspective, algorithms may be considered as coordination facilitators that may be qualified as 'plus factors', when 'their use must constitute an intended and avoidable act that facilitates coordination by creating conscious commitments to a common scheme, which is not justified on procompetitive grounds'²¹⁶⁴. Of course, caution should be exercised to 'separate any facilitating effects of using a given algorithm from facilitating effects that arise from the conditions of the digital world—e.g., increased connectivity' and 'to differentiate between algorithms that facilitate coordination among competitors, and those that might facilitate coordination among other market players'²¹⁶⁵. The difficulty with treating certain algorithms as plus factors facilitating collusion may nevertheless run the risk of casting 'the net too widely', thus 'creating a chilling effect on welfare-enhancing conduct'²¹⁶⁶. Michal Gal argues for not including algorithms facilitating collusion in the scope of the *per se* prohibition of cartels, but in assessing them separately according to a rule of reason, balancing their negative effects on facilitating coordination with their pro-competitive effects, applying a balance of harm approach, according to the following scheme.

2161 W Kovacic, RC Marshall, LM Marx, HL White, 'Plus Factors and Agreement in Antitrust Law' (2011) 110 Michigan Law Review 393, 406–407.

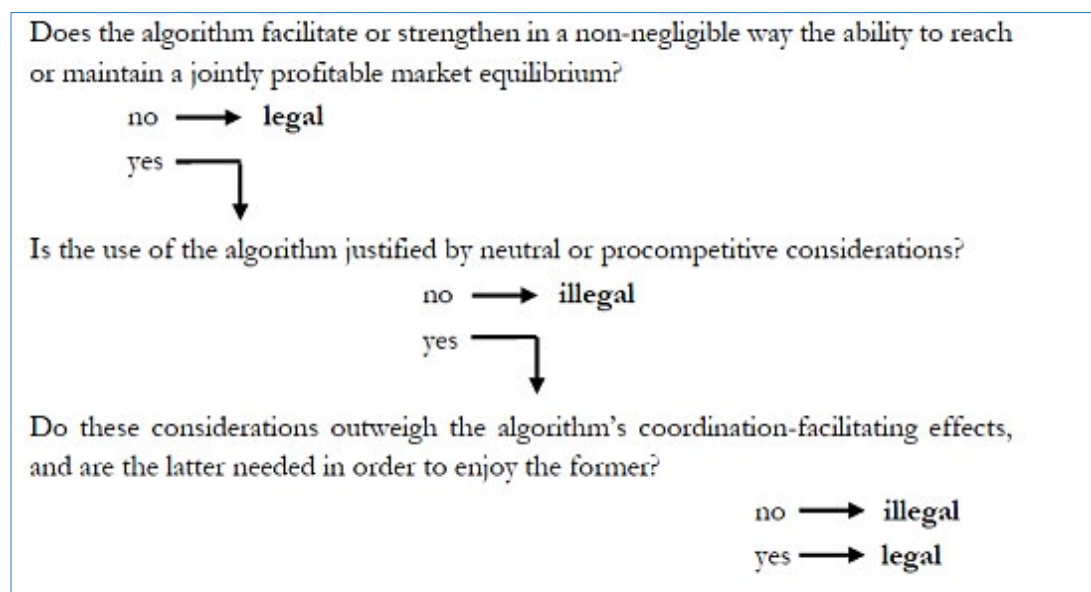
2162 Ibid., 407.

2163 Ibid., 396–397.

2164 For a discussion, see M. S. Gal, Algorithms as Illegal Agreements, (2019) 34 Berkeley Technology Law Journal 67, 110–117.

2165 Ibid., 110–111.

2166 Ibid.

Figure 8.1. Algorithms facilitating collusion

Source: M. S. Gal, *Algorithms as Illegal Agreements*,
(2019) 34 *Berkeley Technology Law Journal* 67, 112.

It cannot, however, be excluded that a rule of reason approach will have a chilling effect to the development of algorithms, even if this is certainly lower than if certain algorithms facilitating collusion were prohibited per se. Hence, a structured rule of reason approach relying on rebuttable presumptions might offer a better option, while staying within the traditional communications-based conception of agreement. These presumptions may be designed so as to cover the cases in which there is a higher likelihood that the algorithm forms part of a collusive design. Without suggesting the development of presumptions, Michal Gal lists the following five scenarios that *prima facie* raise may raise concerns and should be the focus of competition authorities²¹⁶⁷:

- ‘Suppliers consciously use similar algorithms even when better algorithms are available to them. The algorithms need not be identical, but their operative part—which calculates the trade conditions—should generate relatively similar outcomes’.
- ‘Firms make conscious use of similar data on relevant market conditions even when better data sources exist. Data is an essential input in the decision-making process, which affects the decision. Using similar data is especially important when prices are based on consumers’ digital profiles. Note that the data sources themselves need not be identical so long as the information gleaned from them is relatively similar’.
- ‘Programmers or users of learning algorithms give them similar case studies from which to learn despite those not being the best-case studies readily available. Learning algorithms change their decision trees based on learning from

²¹⁶⁷ Ibid., 114.

past experience. If fed similar cases, the algorithms may learn similar things and make decisions accordingly’.

- ‘Users take actions that make it easier for their competitors to observe their algorithms and/or their databases, and their competitors take actions to observe them. The algorithm can signal to other market players how its user is likely to react to market conditions, thereby communicating intent and possibly a credible commitment’.
- ‘The user technologically ‘locks’ the algorithm so that it is difficult to change it. This creates a long-term commitment, or a credible threat that can strengthen coordination, generally without a procompetitive justification’.

These scenarios are certainly interesting but developing presumptions out of them may be a step too far, in particular as economists have recently focused their attention on the ‘mechanism of coordination’ which involves a precise description of the means by which coordination would be implemented and sustained as well as the identification of the conditions that would enable the coordination mechanism to be effective and as such these scenarios describe instances of problematic behaviour without however entering into details as to the ‘mechanisms of coordination’ at play in the specific circumstances. But such scenarios may feed into the discussion of the development of ‘super plus factors’ linked to certain uses of algorithms, such as the ones suggested by Gal.

This debate over the scope of Section 1 of the Sherman Act was also relevant for EU competition law. It is reminded that there were no other institutional alternatives in EU competition law to deal with the issue of “conscious” parallel pricing, in the absence of a provision, such as Section 5 of the FTC Act, although the concept of collective dominant position has the potential to cover some of these instances. The CJEU moved to a position closer to that defended by Turner. In the *Sugar* case, although the CJEU rejected the idea that the concept of concerted practices presupposes “a plan and the aim of removing in advance any doubt as to the future conduct of competitors” and found that collusion does not cover “independent” behaviour, it also noted that “this requirement of independence does not deprive economic operators of the right to adapt themselves intelligently to the existing and anticipated conduct of their competitors”, thus raising some doubts as to the inclusion of conscious parallelism resulting from oligopolistic interdependence to the scope of the collusion element under Article 101(1) TFEU²¹⁶⁸. The Court drew the line between collusion and independent behaviour at “direct or indirect contact [...] the object whereof is either to influence the conduct on the market of an actual or potential competitor or to disclose to such a competitor the course which they themselves have decided to adopt or contemplate adopting in the market”²¹⁶⁹. The Court seemed therefore open to attack oligopolistic interdependence, but only in the

2168 Joined Cases 40–48, 50, 54–56, 111 & 113–114/73 *Re the European Sugar Cartel: Cooperatieve Vereniging ‘Suiker Unie’ UA v Commission* [1975] ECR 1663, paras 173–174.

2169 Joined Cases 40–48, 50, 54–56, 111 & 113–114/73 *Re the European Sugar Cartel: Cooperatieve Vereniging ‘Suiker Unie’ UA v Commission* [1975] ECR 1663, para. 174.

presence of some “facilitating device”, if we borrow from the U.S. antitrust jargon, for instance the existence of direct or indirect contacts between competitors²¹⁷⁰.

In *Wood Pulp*, the CJEU moved even further towards the direction of *Turner*, by introducing a sort of oligopoly defence to the finding of collusion. Notwithstanding the presence of advance price announcements and the universal adoption of a basing point system, which could have facilitated the uniform price increases among the main producers supplying the Community pulp market, the CJEU annulled the Commission’s findings, finding that concertation between competitors was not the only plausible explanation for the parallel conduct, which was explained by the high degree of market transparency and by the oligopolistic tendencies of the market as well as by the specific circumstances prevailing in certain periods²¹⁷¹. ‘Unnatural’ parallel conduct therefore plays an evidential role as a ‘form of economic evidence that substitutes for direct documentation of overt communication²¹⁷²’, although it does not substitute for the requirement of conscious parallelism.

Since the *Wood Pulp* case, it has become more difficult to attack tacit collusion with Article 101 TFEU, even indirectly through facilitating practices, although the Court’s approach towards some type of facilitating practices of collusion, such as information exchange between competitors or Resale Price Maintenance clauses between suppliers and distributors, is rather strict, these practices being found anticompetitive by object. One should distinguish nevertheless between the cases where facilitating practices are assessed as a restriction of competition, and the cases where facilitating practices are considered as evidence of collusion.

The communications-based perspective remains a constant for the provisions on anti-trust collusion in all competition law regimes, possibly influenced by the tort-law nature of competition law, what Harrington refers to as ‘the judicial approach’:

Given that mutual understanding is not something that is directly observed, the judicial approach is to focus on communications among firms and to infer a level of mutual understanding from those communications (while possibly supplementing it with market outcomes in drawing those inferences). From this assessment, the courts seek to determine whether the level of mutual understanding among firm is sufficient to produce (or have the capability to produce) coordinated behavior and thereby to be deemed an unlawful agreement. Express communication among firms involving an exchange of assurances (for example, one firm proposes to raise price and the other firm affirms) is clearly viewed as sufficient to conclude that firms have a “meeting of minds” intended to produce a supracompetitive outcome. The real challenge is evaluating situations in which firms do not engage

2170 J.M. Joshua and S. Jordan, *Combinations, Concerted Practices and Cartels: Adopting the Concept of Conspiracy in European Community Competition Law Symposium on European Competition Law*, (2004) 24 (3) *Northwestern Journal of International Law & Business* 647, 658.

2171 Joined cases C-89, 104, 114, 116–117 & C-125–129/85, *Re Wood Pulp Cartel: A Ahlström Oy and Others v Commission* (Woodpulp II) [1993] ECR I–1307, para. 126.

2172 JE Harrington, *Developing Competition Law for Collusion by Autonomous Artificial Agents* (April 17, 2018) (mimeo), 28.

in such egregious and straightforward means for delivering the requisite mutual understanding²¹⁷³.

Professor Louis Kaplow from Harvard University, criticised the “communication-based” approach in defining collusion/agreement²¹⁷⁴. Kaplow advanced a different approach relying on game theory in order to infer a meeting of minds from oligopolistic interdependence, under certain circumstances²¹⁷⁵. He notes that in an infinitely repeated game, firms may develop strategic thinking allowing them to sustain a non-competitive price by predicting the equilibrium price, not by communicating with their competitors, but by simply relying on a general knowledge of the market and engaging in strategic estimation of their competitors’ choice among a range of possible equilibria, their rivals’ actions being also largely determined by their own strategic predictions as to the actions of their rivals, and so on. The selection of this non-competitive equilibrium is considered as an intersubjective process of mutual understanding among firms that price increases will be at least matched, which may give rise to a meeting of the minds and, consequently, collusion. Kaplow goes as far as denying that communication should be part of the definition of agreement or required for proof of collusion, focusing instead on the following question: are rivals behaving noncompetitively because they have achieved a meeting of minds about their course of action, or are they doing so because they are unilaterally pursuing the same profit-maximising strategies?²¹⁷⁶. Kaplow thus takes an effects-based approach in defining the scope of the collusion concept and links it to the issue of determining the pro or anti-competitive level of prices, which is an issue usually examined when determining the existence of a restriction of competition. By doing so, Kaplow emphasises the need for a nexus between the requirement of collusion, which is a condition for the application of the prohibition rule, and the social harm that motivates the prohibition, for instance the social harm resulting from the elevation of prices as a result of the collusion. He questions the link between the communications-based approach and the social harm of collusion, by raising the “paradox of proof”.

2173 J.E. Harrington, Jr., Exploring the Boundaries of Unlawful Collusion: Price Coordination when Firms Lack Full Mutual Understanding (Working paper, 2012), p. 2

2174 L. Kaplow, Competition Policy and Price Fixing (Harvard University press, 2013).

2175 L. Kaplow, Competition Policy and Price Fixing (Harvard University press, 2013), 38-39, noting that “interdependent behaviour [...] is taken to refer to behaviour that involves coordination with others [...] [T]he thought process involved in such cases is iterative. One party is thinking about what the other is thinking: the second is thinking about what it is thinking, ad infinitum. This subjective state is commonly termed a meeting of the minds [...] In game-theoretic parlance, the situation constitutes an equilibrium”.

2176 Yet, Kaplow excludes mutual understanding over several equilibria from his suggested definition of collusion, even if there are achieved through a meeting of minds between oligopolists, in view of the possibility of errors. For instance, competitive equilibria should not be caught by Section 1, even in the presence of a meeting of minds as enforcement should be limited to instances in which an undertaking has significantly elevated prices. This is also the case for certain non-competitive equilibria, such as monopoly pricing, which is tolerated in US antitrust law, Cournot oligopolies, which are one-shot games and thus cannot be classified as involving interdependent conduct, and Bertrand oligopolies, where firms sell differentiated products at prices above marginal cost, as this sort of pricing is independent, because each seller takes the actions of its rivals as given.

Under the current communications-based approach adopted by both EU and US anti-trust law, if the parallel behaviour of the undertakings in the market may be explained by the oligopolistic nature of the market, there is no collusion, as the behaviour of the undertakings is deemed a natural consequence of the competitive interplay in tight and transparent oligopoly markets. Kaplow finds that the communications-based prohibition is paradoxical, “in the sense that it assigns liability to cases of moderate danger while exonerating defendants in cases posing the highest threat: where the expected likelihood, magnitude, and longevity of price elevation are the greatest”²¹⁷⁷. In contrast, an approach that will focus on the effects of the interaction between firms in an oligopolistic setting, when determining the existence of collusion, will escape the paradox as it will put the social objective motivating the legal prohibition at the centre of the analysis. Such an approach will certainly be incompatible with the “jurisdictional” view of the concepts of agreement, concerted practice and decision of association of undertakings, as it will link the interpretation of the element of collusion to that of restriction of competition. This is not the way most competition law regimes have defined the antitrust concept of collusion.

While the idea of ‘agreement’ as a basis for collusion has been and will continue to be relevant to antitrust, Brazil is a jurisdiction in which there is no need to find an ‘agreement’ for a collusive violation to be configured.²¹⁷⁸ According to art. 36 of Law 12,529/2012, any act which may have the effect of limiting free competition, controlling a relevant market and others may constitute a violation, even if it is unilateral and its effects are not achieved. Having said that, Brazil has no cases tackling algorithmic collusion directly. However, CADE has identified and sanctioned collusion through computer automation as a possible way of coordinating behaviour. One recent case involved three Brazilian airlines (VARIG, TAM, Transbrasil, and VASP) that made use of an automated system to coordinate price fixing agreements²¹⁷⁹. CADE has also investigated two other cases involving the use of software in order to implement price fixing agreements. One of them involved competitors that hired an IT company to develop a software tool that would facilitate the cartel coordination related to driving schools²¹⁸⁰. CADE considered that there was a clear intention of developing an algorithm and a computer program to coordinate

2177 L. Kaplow, *Competition Policy and Price Fixing* (Harvard University press, 2013), 405.

2178 Murilo Lubambo, ‘Vertical Restraints Facilitating Horizontal Collusion: Stretching Agreements in a Comparative Approach’ (2015) 4 UCL Journal of Law and Jurisprudence 135, 142.

2179 CADE, Administrative Proceedings 08012.000677/1999-70, Decision on 15 September 2004. Defendants: Transbrasil Linhas Aéreas, a Viação Aérea Rio-Grandense – VARIG S/A e a Viação Aérea São Paulo – VASP, Fernando da Cruz Pinto (VARIG), Rolim Adolfo Amaro (TAM), Wagner Canhedo Azevedo (VASP) e Celso Cipriani (TRANSBRASIL).

2180 CADE, Administrative Proceedings 08012.011791/2010-56, Decision 05 February 2016. Defendants: Condutores Borges & Castro Ltda. ME (Auto Escola e Despachante União), Auto Escola Brasil, Despachante e Autoescola Excelsior Ltda. (Despachante Excelsior), Paiozin & Paiozin Ltda. (Despachante Central), Despachante Veloz S/C Ltda. (Despachante Veloz), Paulo Amaro Andrade (Despachante Avenida), Neli Tadin Reis (Despachante Europa), Maria de Lurdes Camilo (Despachante Expresso), Deise Aparecida de Araújo Fernandes (Despachante Pontual), Vorney Caetano ME (Auto Escola Santa Rita), Carvalho & Carvalho Auto Moto Escola Ltda. ME (Auto Escola VIP), Centro de Formação de Condutores Quatro Rodas Ltda. ME (Auto Escola Quatro Rodas), M3 Despachante Ltda. ME, Criar Prestadora de Serviços Internet Ltda. ME, José Carlos dos Reis e Claudionor Nivaldo Theodoro.

anticompetitive behaviour. In another case, two companies were investigated for being part of a cartel related to vehicle registration plates. The companies used an electronic system to fix the prices of the plates and to prevent companies that were not part of the agreement from receiving orders, thus restricting customers' choice²¹⁸¹.

Article 11.1. of the Russian Federal Law 'On Protection of Competition' prohibits cartels, i.e. agreements between competitors that lead or might lead to one of the anticompetitive effects listed in that Article. As the Russian case law demonstrates, the concept of agreement is central for establishing existence of a cartel, because the competition authority should prove the fact of conclusion of an agreement, in the first place, or participation in it, without the need to prove anticompetitive effects of such agreements on the market.²¹⁸² Therefore, the concept of the classic "cartel" is firmly grounded in the communication-based theory of collusion.

Article 11.1 of the Russian Federal Law 'On Protection of Competition' also sets forth prohibition of concerted practices, for which no agreement is needed, but the actual occurrence of anti-competitive effects must be proven. According to Article 8 of the said law, concerted practices should meet each of the following criteria:

- the result of such actions corresponds to the interests of all participants;
- the actions are known in advance to each of the participants following the public announcement of one of the participants of its intent to perform such actions;
- the actions of each of participants are caused by the actions of other participants (inter-dependency), and not by circumstances that equally affect all competitors in the relevant product market.

Therefore, even for concerted actions, which are mostly in line with the notion of 'tacit collusion', communication between participants (see the condition (ii) – public announcement of intent to perform the concerted action) is essential for the anticompetitive conduct to exist. The parallel behaviour that can be explained by the nature of the market (i.e. circumstances that equally affect all competitors in the relevant product market) falls outside the scope of the prohibited concerted practices.

In India, proof of an agreement is a pre-condition in determining whether a conduct between competitors amounts to a cartel.²¹⁸³ As per Section 3 (3) of the Indian Competition Act, 2002, 'any agreement entered into between enterprises or associations of enterprises or persons or associations of persons or between any person and enterprise or practice carried on, or decision taken by, any association of enterprises or association of persons, including cartels, engaged in identical or similar trade of goods or provi-

2181 CADE, Administrative Proceedings 08012.005660/2010-30. Decision: 26 May 2015. Defendants: Associação dos Fabricantes de Placas e Similares do Ceará (AFACE) e Serviço Técnico Veicular Ltda. (ITV).

2182 See J. Polyakova and K. Podgusova, 'Standard of proof for cartels in judicial practice. When antitrust authorities do not find support from the courts' (2014) N 9 General Counsel.

2183 Vaibhav Choukse, Financial Express, August 2018, available at: <https://www.financialexpress.com/opinion/why-digital-cartelisation-will-be-a-new-challenge-for-the-anti-trust-regime/1278723/>

sion of services (commonly known as horizontal agreements) are presumed to have appreciable adverse effect on competition (AAEC) and, therefore, are anti-competitive and void'.²¹⁸⁴ However, efficiency enhancing joint ventures are exempt from such presumption. Section 2 (c) of the Act defines cartels as 'an association of producers, sellers, distributors, traders or service providers who, by agreement amongst themselves, limit, control or attempt to control the production, distribution, sale or price of, or, trade in goods or provision of services'.²¹⁸⁵ Section 2 (b) of the Act defines agreements to include any arrangement or understanding or action in concert *whether or not it is formal or in writing* or intended to be enforceable by legal proceedings.²¹⁸⁶ The commission has held this definition to not be exhaustive but inclusive to the extent of including a 'nod or a wink'.²¹⁸⁷

Further, the Commission has held that mere exchange of information or presence of an agreement is not sufficient evidence for cartelization but it needs to be followed up with an act done in furtherance to it.²¹⁸⁸ Once that is established, there is a presumption in law that the cartelizing conduct has an AAEC, which is open to rebuttal by the charged parties. In doing so, the applicable standard of proof applied under Indian Competition Law is 'preponderance of probability'.²¹⁸⁹ Thus, the Indian competition law seems to be premised on a communications-based theory of collusion.

For instance, in a recent decision on allegations of algorithmic price fixing ('hub and spoke' type) against the taxi aggregators Ola and Uber (not between Ola and Uber, but individually *qua* their drivers), the Commission observed that 'existence of an agreement, understanding or arrangement, demonstrating the meeting of minds is a *sine qua non* for establishing contravention under Section 3 of Competition Act, 2002'.²¹⁹⁰

It may be noted that "meeting of the minds" observed by the Commission does not seem to be in the same sense as Kaplow has suggested. The "existence of agreement, understanding or arrangement" or in other words, some form of communication still seems to be necessary to establish "meeting of minds".

2184 The Competition Act of India, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf; Competition Commission of India, Advocacy Booklet on Cartels, available at: https://www.cci.gov.in/sites/default/files/advocacy_booklet_document/cartel%20book.pdf

2185 The Competition Act of India, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf

2186 The Competition Act of India, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf (emphasis added).

2187 Express Industry Council Of India vs Jet Airways (India) Ltd. & Others on 7 March, 2018, available at: <https://www.cci.gov.in/sites/default/files/30%20of%202013.pdf>

2188 In Re: Alleged Cartelisation in Flashlights Markets in India (Suo Moto Case 1/2017), available at: <https://www.cci.gov.in/sites/default/files/SuoMoto-01-of-2017.pdf>

2189 Rajasthan Cylinders and Containers v. Union of India, Civil Appeal Number 4280 of 2014, Decided on October 1, 2018, available at: https://sci.gov.in/supremecourt/2014/3644/3644_2014_Judgement_01-Oct-2018.pdf

2190 Competition Commission of India, Case No. 37 of 2018, Samir Agrawal vs. ANI Technologies Pvt. Ltd. & Uber, Page No. 10, available at: <https://www.cci.gov.in/sites/default/files/37of2018.pdf>

However, one leeway, where deviation can be made from communication-based theory under the present provisions of the Competition Act, is the construction of the words 'understanding' and/or 'action in concert' featuring in the definition of 'agreement' in Section 2(b) of Act. It may be possible in future that 'understanding' and/or 'action in concert' is construed to include what Kaplow suggests i.e. '[o]ne party is thinking about what the other is thinking: the second is thinking about what it is thinking, ad infinitum. This subjective state is commonly termed a meeting of the minds'. Since the competition law jurisprudence with respect to digital technologies, in general, and algorithmic collusion, in particular, is at a nascent stage in India, time will be a more appropriate teller of India's concrete position on the same.

8.3.2. Conceptual and technological limits of the communications-based approach

Without abandoning the normative core of the communications-based approach, competition law regimes have broadened the concept of collusion to also bring within the prohibition principle not only direct forms of collusion, but also indirect. A classic example is the approaches followed in EU competition law with regard to facilitators of collusive activity. In *Treuhand*, the Commission, confirmed by the CJEU considered Treuhand, a consultancy firm based in Switzerland and offering business management and administrations services, liable, under Article 101(1) TFEU, for a cartel consisting in fixing prices, allocation of markets, customers and exchange of commercially sensitive information between undertakings active in the heat stabilisers sector²¹⁹¹. Although AC-Treuhand did not trade on the relevant markets or on related markets, the Commission found that it played an essential role in the infringement, by organizing meetings for the cartel participants which it attended and in which it actively participated, collecting and supplying to the participants data on sales on the relevant markets, offering to act as moderator in case of tensions between the cartel participants and encouraging the parties to find compromises. The presence of a human agent may indeed orchestrate collusion, making it possible. The literature on cartels has noted the operation in some horizontal price fixing conspiracies of an undertaking/agent, situated at a different relevant market than the one covered by the cartel, whose function is to serve as "an intermediary that speaks individually to each of the competitors and then relays each competitor's agreement [...] to the other competitors in a series of one-to-one conversations"²¹⁹². The main concern of the participants to these conspiracies is to facilitate the implementation of the cartel even if they do not benefit from its effects directly (although they might receive some other form of compensation from the cartel members). The presence of these intermediaries on vertically related upstream or downstream markets or on markets that are simply not related to the one the cartel operates may introduce some non-horizontal/triangular element in the collusion, thus making its qualification more complex, the concerted practice being indirect rather than direct. A common characteristic of these

2191 See, Case C-194/14 P, AC-Treuhand AG v. Commission, [2015], ECLI:EU:C:2015:717.

2192 George Hay, "Horizontal agreements: concept and proof" (2006) Antitrust Bulletin 877, 882

situations of indirect collusion is that the undertakings in this triangular relation are all concerned with the implementation of the horizontal collusion scheme. According to well-established case law, this intermediary may be found to infringe competition law, for instance Article 101 TFEU strictly precludes “any direct *or indirect* contact” between competitors²¹⁹³. This is particularly the case if, for instance, information on future prices is exchanged between competitors through this intermediary. Indeed, even when information is disclosed “indirectly through a common agency (for example, a trade association) or a third party such as a market research organization or through the companies’ suppliers or retailers’ such conduct may well infringe competition law”²¹⁹⁴. There are various examples in the case law where a cartel was structured so as to rely on a third party in an upstream or downstream market, which has been outsourced some typical cartel function (ensuring the logistics of the meetings, monitoring the implementation of a cartel)²¹⁹⁵.

Advances in communication technologies may also change the dynamics of collusion. Information on prices, but also future pricing trends may be posted on web sites, making price signalling easier. Firm representatives may communicate through “facially anonymous” blogs and chat-rooms or web-casts, enabling instant and less traceable communication, than “old-fashioned” press conferences, conference meetings in “smoke-filled rooms” etc²¹⁹⁶. Price fixing through algorithms may replace more classic forms of collusion. This may render detection more difficult for competition authorities which are, at the same time, subject to more extensive due process requirements, as a result of the extension of human/fundamental rights protection for corporate defendants. Other advances in communications, such as e-mails or digitilisation, which facilitate record-keeping may assist competition authorities in the detection of collusive practices.

Indirect collusion may occur with various, even less common, ways of reciprocal contact. This may be accomplished for instance through an IT platform and a pricing algorithm. In E-turas collusion was implemented through the use of a common online travel booking system (called E-turas), used by most travel agents in Lithuania²¹⁹⁷. The director of E-turas had sent an email to the travel agencies having an electronic account in the E-turas system asking them to ‘vote’ on the appropriateness of reducing the discounts offered on booking made through that system. A few days after sending this message, the administrator of E-turas sent through the internal messaging system of E-turas an additional message indicating that a capping of the discount rate will be introduced ‘following the appraisal of the statements, proposals and wishes expressed by the travel agencies’. Travel agents were not prevented from granting their customers greater

2193 Joined Cases 40-48, 50, 54-56, 111, 113-114/73 *Coöperatieve Vereniging ‘Suiker Unie’ UA v Commission* [1975] ECR 1663, para. 174 (emphasis added).

2194 Communication – Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, [2011] OJ C11/1.

2195 See, for instance, Joined Cases 100–103/80, *SA Musique Diffusion Française v. Commission*, [1983] ECR 1825, paras 75-76, 79.

2196 L. Kaplow, *Competition Policy and Price Fixing* (Harvard University press, 2013), 437-438.

2197 *ibid.*, [61].

discounts but in order to do so they were required to take additional technical steps. The Lithuanian Competition Council considered that the travel agents using the E-turas booking system during the period in question had participated, along with E-turas, in an anticompetitive concerted practice, the E-turas system being used as a tool for coordinating the travel agents' actions and eliminating the need for meetings. In a preliminary ruling, the CJEU held that a finding of a concertation between the travel agencies was justified, as they were aware of the content of the message at issue and therefore had tacitly assented to a common anticompetitive practice.²¹⁹⁸ However, it also noted that 'if it cannot be established that a travel agency was aware of that message, its participation in a concertation cannot be inferred from the mere existence of a technical restriction implemented in the system at issue', unless there are 'other objective and consistent indicia that it tacitly assented to an anticompetitive action'.²¹⁹⁹

Collusion may also be achieved, directly or indirectly, through the use of a pricing algorithm. A recent case of price-fixing brought by the U.S. Department of Justice's San Francisco division against an e-commerce executive, Mr Topkins, alleged that the defendant and his co-conspirators adopted specific pricing algorithms for the sale of certain posters at the Amazon Marketplace with the goal of coordinating changes to their respective prices and wrote computer code that instructed algorithm-based software to set prices in conformity with this agreement²²⁰⁰. Uber's surge pricing also constitutes another example in which an algorithm pushes up prices or, as Uber would argue, balances supply and demand when many cars are needed simultaneously²²⁰¹.

Some competition authorities have also cracked down on price signaling using the remedial discretion that they enjoy with regard to facilitating practices, such as public announcements. The European Commission's recent decisions against container liner shipping companies for making regular public announcements of their (intended) future increases of prices through press releases on their websites and in the specialized trade press, provide some further illustrations on the expansion of the concept of anti-trust collusion, although in each of these cases there were identifiable competitors that proceeded to some form of communication (public announcements)²²⁰².

In the Indian Competition Law jurisprudence, the allegations of algorithmic price fixing featured in the case of *Samir Agrawal vs. ANI Technologies Pvt. Ltd. & Uber*.²²⁰³ The informant raised three primary allegations against taxi aggregators Ola and Uber operating in India²²⁰⁴:

2198 *ibid.*, [44].

2199 *ibid.*, [45].

2200 See, press release available at <https://www.justice.gov/opa/pr/former-e-commerce-executive-charged-price-fixing-anti-trust-divisions-first-online-marketplace>.

2201 For a more detailed analysis and further examples, see OECD, Algorithms and Collusion: Competition Policy in the Digital Age (2017), available at www.oecd.org/competition/algorithms-collusion-competition-policy-in-the-digital-age.htm.

2202 Communication of the Commission published pursuant to Article 27(4) of Council Regulation (EC) No 1/ 2003 in Case AT.39850— Container Shipping [2016] OJ C 60/ 7.

2203 *Supra* Note 11.

2204 *Ibid.*

- Cab Aggregators use their respective algorithms to fix prices for every ride and do not allow the drivers to compete on prices. They operate as a Hub and Spoke Cartel where the aggregators act as a Hub for the collusion between the spokes i.e. the drivers.
- Price fixing acts as an imposition of minimum resale price maintenance agreement between the Cab Aggregators and their drivers.
- Owing to information asymmetry, Cab Aggregators possessing considerable personalized information about every rider have been able to price discriminate to the disadvantage of the riders.

On finding no *prima facie* contravention by Ola and Uber, the Commission dismissed the information and made the following observations²²⁰⁵. A traditional understanding of a hub and spoke cartel refers to exchange of sensitive information between competitors through a third party that facilitates the cartelistic behaviour of such competitors. In the present case, a hub-and-spoke cartel would require an agreement between all drivers to set prices through the platform, or an agreement for the platform to coordinate prices between them. The Cab aggregators provide a centralized aggregation function that relies on algorithmic determination of prices and have sole control over prices. Since there is no minimum floor price set by the aggregators, prices are sometimes even lower than the market price and thus, there is no resale of services in the first instance. As regards price discrimination, that was dealt with under Section 4 of the Competition Act which comes into play once dominance is established. Since the two players are not dominant in the market and collective dominance is not recognized under the law, the commission did not delve into the same.

In May 2018, the then Chairperson of the Competition Commission of India ('CCI') informed in conference that the CCI plans to assess algorithms used by domestic airlines for ticket pricing to check for possible cartelisation.²²⁰⁶ However, no report has been released by the CCI in this regard.

Some competition law regimes have gone further than expanding the antitrust concept of collusion, and have developed specific tools to deal with practices facilitating collusion. One may give the example of Section 5 of the FTC Act in the US which prohibits "unfair or deceptive acts or practices in or affecting commerce" and does not require prior to its application evidence of collusive conduct. The Federal Trade Commission has entered into consent agreements in several cases alleging that an invitation to collude through a private or public announcement, although unaccepted by the competitor, violated Section 5 of the FTC Act²²⁰⁷. The FTC explained this case law by the fact that it may

2205 Ibid.

2206 Financial Express, May 2018, available at: <https://www.financialexpress.com/industry/high-airfares-are-airlines-over-charging-you-cci-to-investigate/1163679/>

2207 See, Quality Trailer Products Corp., 115 F.T.C. 944 (1992); A.E. Clevite, Inc., 116 F.T.C. 389 (1993); YKK (USA) Inc., 116 F.T.C. 628 (1993); Precision Moulding Co., 122 F.T.C. 104 (1996); Stone Container Corp., 125 F.T.C. 853 (1998); In re MacDermid, 129 F.T.C (C-3911) (2000); Valassis Communications, Inc., Analysis of Agreement Containing Consent Order to Aid Public Comment, 71 Fed. Reg. 13976, 13978-79 (Mar. 20, 2006); In re U-Haul Int'l, Inc., 150 F.T.C. 1, 53 (2010) ; In re

be difficult to determine whether a particular solicitation has or has not been accepted, that even an unaccepted solicitation may facilitate coordinated interaction by disclosing the solicitor's intentions or preferences, and finally the deterrence effect against conduct that is potentially harmful and that serves no legitimate business purpose. If a specific jurisdiction would like to adopt a prophylactic approach, they can develop specific prohibitions and rules concerning facilitating practices, by also extending the scope of the competition scrutiny of oligopolistic structures to also cover unilateral+ conduct, such as invitations to collude or more generally facilitating practices for tacit collusion. However, not all competition law regimes offer the possibility to gauge "attempts" to collude or unilateral information disclosure conduct that may produce anticompetitive effects. This may appear problematic as the increasing levels of economic concentration leave only a few large players in a number of markets, making collusion easier to implement and to sustain. However, one may also argue that there should be a distinction between facilitating practices (e.g. MFN, RPM, information exchange etc.), which even on their own may raise some competition concerns, and the *risk* of conduct facilitating tacit collusion, but cannot be considered on its own as raising anticompetitive concerns.

The important technological progress in artificial intelligence, the development of algorithms and deep machine learning in modern digital economy has brought to the fore new challenges for competition law enforcement in oligopolistic industries²²⁰⁸. Businesses become 'algorithmic' by using algorithms to automatize processes relating to their relations with their customers, suppliers, with the aim to gain an 'algorithmic' competitive advantage against their competitors. Firms' pricing decisions have also been increasingly delegated to software programs that incorporate the latest developments of artificial intelligence. It is the most recent second generation 'learning' pricing algorithms that may pose concerns. Although the use of algorithms to facilitate both collusion and personalized pricing is conceivable in principle, it has been alleged that it is very unlikely to occur in practice²²⁰⁹. This is particularly so with respect to tacit collusion, as the absence of posted prices under personalized pricing would make it very difficult for allegedly colluding firms to observe rivals' prices in order to detect cheating.

McWane, Inc., Docket No. 9351, Opinion of the Commission on Motions for Summary Decision at 20-21 (F.T.C. Aug. 9, 2012) ("an invitation to collude is 'the quintessential example of the kind of conduct that should be . . . challenged as a violation of Section 5'"); In the Matter of Mr. Jacob J. Alifraghis, Also Doing Business As InstantUPCCodes.com, and In the Matter of 680 Digital, Inc., Also Doing Business As Nationwide Barcode, and Philip B. Peretz, File No. 141-0036 (August 2014), available at <https://www.ftc.gov/enforcement/cases-proceedings/141-0036/instantupccodescom-matter>. In a case brought under a state's version of Section 5, the First Circuit expressed support for the Federal Trade Commission's application of Section 5 to invitations to collude. *Liu v. Amerco*, 677 F.3d 489 (1st Cir. 2012).

2208 See OECD, 'Algorithms and Collusion: Competition Policy in the Digital Age' (2017), available at www.oecd.org/competition/algorithms-collusion-competition-policy-in-the-digital-age.htm; A Ezrachi and ME Stucke, 'Two Artificial Neural Networks Meet in an Online Hub and Change the Future (of Competition, Market Dynamics and Society)' (14 September 2017), available at <https://ssrn.com/abstract=2949434>; I Lianos and H Ekbja, 'Artificial Collusion Dreams in Competition Law: A Comparative Law and Technology Approach', CLES Research Paper 1/ 2019, forthcoming

2209 CMA, 'Pricing Algorithms— Economic Working Paper on the Use of Algorithms to Facilitate Collusion and Personalised Pricing' (2018), paras 7.31– 7.38, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/746353/Algorithms_econ_report.pdf

It is clear that the use of pricing algorithms can increase the efficiency of markets as the way firms set prices can be more responsive to changes in demand so that markets clear faster, which is particularly valuable for perishable goods, and, more in general, with respect to how firms manage their inventory. However, they may also increase the risks of collusion, which may escape the scrutiny of competition authorities.

Indeed, 'algorithms make collusive outcomes easier to sustain and more likely to be observed in digital markets'²²¹⁰. This is achieved, first by the capabilities of algorithms 'to identify any market threats very fast, for instance through a phenomenon known as now-casting, allowing incumbents to pre-emptively acquire any potential competitors or to react aggressively to market entry',²²¹¹ thus increasing strategic barriers to entry. Second, they increase market transparency and the frequency of interaction, making the industries 'more prone to collusion'²²¹². Prices can be updated in real-time, 'allowing for an immediate retaliation to deviations from collusion', as well as accurately predicting rivals' actions and anticipating any deviations before these actually take place.²²¹³ Third, they can act as facilitators of collusion in monitoring competitors' actions in order to enforce a collusive agreement, enabling a quick identification of cartel price deviations and retaliation strategies²²¹⁴. Fourth, they may facilitate 'hub and spoke' strategies, the firms in an industry instance outsourcing the creation of algorithms to the same IT companies and programmers²²¹⁵. Fifth, 'signalling algorithms' may enable companies to automatically set very fast iterative actions, such as snapshot price changes during the middle of the night, that cannot be exploited by consumers, but which can facilitate collusion with rivals possessing good analytical algorithms²²¹⁶. Finally, 'self-learning' algorithms may eliminate the need for human intermediation, as using deep machine learning technologies, the algorithms may assist firms in actually reaching a collusive outcome without them being aware of it²²¹⁷. This raises some quite interesting issues with regard to the scope of the concept of antitrust collusion in this situation, to the extent that a firm may make an invitation to collude through this self-learning algorithms, while competitors would accept the offer by using similar algorithms. For some, '[t]his raises the concern of whether the need to address algorithmic collusion should require a new definition of what is an agreement for antitrust purposes',²²¹⁸ and eventually strict liability for the companies designing such algorithms, and/ or those using such algorithms (although this option may considerably increase type I errors, as deep learning algorithms do not provide information about the decision-making process that led to conversion of data inputs into decision outputs). This also raises questions as to the availability of competition law remedies in this case, or the need to move beyond

2210 OECD, 'Algorithms and Collusion: Competition Policy in the Digital Age' (2017), 20.

2211 Ibid, 21.

2212 Ibid.

2213 Ibid., 22.

2214 Ibid, 26.

2215 Ibid, 28.

2216 Ibid, 29– 31.

2217 Ibid, 32– 33.

2218 OECD, 'Algorithms and Collusion: Competition Policy in the Digital Age' (2017), 36.

competition law and regulate more pervasively, through the action of competition authorities and/ or digital regulators, the design and use of algorithms so as to prevent algorithmic collusion.

Another interesting aspect to consider is whether the adoption of pricing algorithms must be common to all competing firms in order to facilitate tacit collusion, or whether the fact that only some of the firms have adopted them would mitigate the risk of anti-competitive effects. In the former case, it could be argued that common adoption would in and of itself suffice to establish the existence of a mutual understanding (ie, a 'meeting of the minds') between rival firms²²¹⁹.

Finally, to the extent that the use of pricing algorithms to facilitate collusion takes place on an electronic marketplace, it is worth asking whether e- marketplace platforms should also face antitrust scrutiny. In other words, should the operator of the e- marketplace have a duty to police whether sellers are coordinating prices through the use of algorithms? This may be so to the extent that the platform operator benefits by being able to charge higher fees to colluding sellers.

For such pricing algorithms, the traditional communications-based approach adopted in competition law may not work. Various regulatory options may be put forward: (i) take a wait and see approach collecting evidence about the real occurrence of algorithmic pricing and the risks for collusion, (ii) prohibit algorithmic pricing (a quite extreme option as pricing algorithms may also improve pricing decisions to the benefit of consumers), (iii) regulate price algorithms *ex ante* with some form of notification requirement and prior analysis by the Commission or national competition authorities, eventually using the procedure of regulatory sandbox²²²⁰, and (iv) we may want to regulate them *ex post* through the application of competition law²²²¹. The following Section examines if the antitrust concept of collusion and its emphasis on communication may take, or not, into account all forms of algorithmic collusion.

8.3.3. Is the antitrust concept of collusion and its emphasis on communication sufficient to take into account all forms of algorithmic collusion?

As previous discussed Joseph Harrington distinguishes between the use of algorithms to monitor and enforce an existing coordinated strategy and the situations under which pricing algorithms can lead to coordinated outcomes even when each firm is using own

2219 For a detailed discussion, see P Siciliani, 'Tackling Algorithmic- Facilitated Tacit Collusion in a Proportionate Way' (9 August 2018) J European Competition L & Practice, available at <https://doi.org/10.1093/jeclap/lpy051>.

2220 See, A Ezrachi & M Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy* (Harvard UP, 2016).

2221 See JE Harrington, *Developing Competition Law for Collusion by Autonomous Artificial Agents* (April 17, 2018) (mimeo) (the author defines collusion as 'collusion is the situation when firms use strategies that embody a reward-punishment scheme which rewards a firm for abiding by the supracompetitive outcome and punishes it for departing from it'. The study defines liability and evidentiary standards for the application of competition law to collusion by autonomous agents).

pricing algorithms without communication with the rivals²²²². In particular, he identifies three possibilities:

- a. The first possibility is conventional collusion facilitated by coordination on pricing algorithms. These practices fall under existing competition law. Hence, they should be considered as illegal and should be enforced in a way similar to current practice of cartel (explicit collusion) enforcement.
- b. The second possibility identified in Harrington (2019) is collusion through third party pricing. It can take various forms. Firstly, the platform can set prices at which the two sides of platform transact. Secondly, pricing can be outsourced to a third party or a software developer, which can appear to be a facilitator of collusive pricing. But then the following questions arise: Is it illegal for platform to control the prices at which the two sides transact? Is it illegal for competing firms to allocate pricing authority to a common third party? Is it illegal to outsource pricing to digital marketing agencies, which set the prices for competitors and maximize a collective objective such as aggregate profits without explicit communication between these competitors? Current law does not provide clear answers to these questions. Nevertheless, it can be argued that these pricing schemes can imply harm to consumers if third parties or software developers deliberately choose to coordinate on prices in order to reduce competition. In this case the third party could be liable for customer damages.
- c. The third possibility is algorithmic collusion which is facilitated solely through coordination by pricing algorithms without explicit communication by humans. When competing firms independently adopt complex pricing algorithms, due to their complexity the behaviour of algorithms is unpredictable from the perspective of the managers. So the manager cannot be made responsible for the collusive strategies developed by algorithms. However, each manager observes the results and can evaluate whether pricing algorithm results in higher profits or not and whether the algorithm has been able to develop collusive pricing strategy or not. Supposedly, manager should be able to at least roughly estimate what are the monopoly prices and profits in a particular industry and compare those to the performance of the algorithm.

The important question arises: Whether collusion by autonomous artificial agents illegal? Harrington (2019) concludes that taking into account current legal rules collusion through the use of artificial algorithms is legal. The reasons are that, firstly, there is no overt act of communication and, secondly, managers acted independently and did not foresee collusion, hence, there is no agreement. On the other hand, he also poses the question: “Why is communicating to collude illegal but colluding is legal?”. Then Harrington (2019) discusses how it can be made illegal. For example, one could introduce a

2222 JE Harrington, Developing Competition Law for Collusion by Autonomous Price-Setting Agents. (2019) 14(3) Journal of Competition Law and Economics 331-363. See also article entitled “Competition Law and Pricing Algorithms” presented by Joe Harrington at the Bergen Competition Policy conference (BCCELE conference) in April 2019.

per se prohibition on certain pricing algorithms that support supra-competitive prices (such as algorithms that use price matching or asymmetric responses). Another possibility that liability would be determined by dynamic testing: entering data into the pricing algorithm and monitoring the output in terms of prices to determine whether the algorithm is prohibited.

Joseph Harrington concludes by summarizing the general competition policy goals in the area of dealing with pricing algorithms. Firstly, it is important to evaluate how coordinating on pricing algorithms affects the efficacy and profitability of collusion. Secondly, he identifies the need to develop rules for how a third party can price when it has competitors as clients. Finally, one of the most challenging tasks is developing competition law for collusion that occurs without human intervention. To answer the question posed in the title of this section we can conclude that the antitrust concept of collusion is not sufficient to take into account all forms of algorithmic collusion. It is probably sufficient for the situations of coordination on pricing algorithms and third-party-pricing. But it is not sufficient for the situation of autonomous tacit collusion by learning algorithms themselves.

8.3.4. Reforming the antitrust concept of collusion

Although there have been suggestions for reforms in the way antitrust collusion is defined, neither the EU, nor the US have so far proceeded in revising the current communications-based approach in defining collusion. However, there have been some reforms introduced in other jurisdictions, and in particular the BRICS.

Although not specifically pertaining to cartels and collusion, in view of the changing business environment, on August 30, 2018 the Indian government formed a Competition Law review Committee²²²³ to review the Competition Act, 2002. Recommendations have been made to the Committee to incorporate provisions for anti-competitive agreements arising due to algorithms, such as artificial intelligence led cartels and machine to machine collusion etc.²²²⁴ The report is yet to be released by the Committee.

FAS of Russia in its recent decisions found Russian subsidiaries of LG²²²⁵ and Samsung²²²⁶ liable for price fixing using pricing algorithms. Since those algorithms allowed companies to monitor whether resellers deviated from recommended retail prices, Russian competition authority considered pricing algorithms to be the tools which facilitated price fixing. In 2019 FAS of Russia issued recommendations titled 'On practices in the field of using information technologies in commerce, particularly, related to use of price algorithms' in order to clarify its views on the use of pricing algorithms.²²²⁷ Although

2223 <http://pib.nic.in/newsite/PrintRelease.aspx?relid=183835>

2224 CUTS-CIRC Submission to the Competition Law Review Committee, available at: http://www.cuts-ccier.org/pdf/CUTS-CIRC_Submission_to_Competition_Law_Review_Committee.pdf

2225 See Russia Country Fiche for the detailed analysis of the LG case.

2226 Press Release, "Samsung" unlawfully coordinated prices for smartphones and tablets' (25 April 2019) <<http://en.fas.gov.ru/press-center/news/detail.html?id=53993>> accessed 31 July 2019.

2227 Press Release, 'Recommendations on practices in the field of using information technologies in commerce' (22 March

the LG case was an important precedent for FAS of Russia enforcement practice, this case together with the recent FAS of Russia recommendations is grounded in current legislative framework. FAS of Russia advocated for amending the legislation, but it is unclear whether such amendments will be implemented.²²²⁸ In particular, the Fifth antimonopoly package covered the issue of pricing algorithms: according to the proposal, pricing algorithm is a software to monitor, calculate or control prices, and the use of pricing algorithms, though not per se illegal, aggravates liability when used to restrict competition.²²²⁹ The final draft of the Fifth antimonopoly package submitted to the Government of the Russian Federation does not contain provisions on pricing algorithms. Nevertheless, provisions on pricing algorithms as aggravating circumstances in case of competition law violations are now part of another legislative proposal currently undergoing public discussion.²²³⁰

8.3.5. Concluding remarks: Policy options

So far no one has brought an antitrust case against autonomous colluding algorithms, where autonomous agents could have coordinated their price setting behaviour to maximize their joint profits, i.e. to tacitly collude.²²³¹ One reason is that under current legislation this cannot be considered as a violation of competition law. But even if algorithmic collusion would be considered as a violation of competition law, the problem arises how to verify whether algorithms have in fact colluded and whether the algorithms have converged to collusive prices. Furthermore, even after CA is able to verify that the algorithms have indeed converged to a collusive equilibrium and that it is a potential violation of competition law, the question of liability arises. Who is going to be liable: the programmer of the algorithm or the owners of the firm?

Given the special features of self-learning algorithms described above, in order to avoid the problem of algorithmic collusion altogether, one could prohibit the use of self-learning price-setting algorithms in the first place. This, however, does not seem an acceptable solution because this would also block many efficiencies that these algorithms generate. On the other hand, Ariel Ezrachi and Maurice Stucke suggest condemning or at least challenging the creation of market conditions which lead to sustaining tacit collusion. This relates to the creation of a transparent market in which monitoring and punishment mechanisms are present. This suggestion also does not seem to be feasible as it is not clear what competition authorities could do to reduce market transparency.

2019) < <http://en.fas.gov.ru/press-center/news/detail.html?id=53872> > accessed 31 July 2019.

2228 See Russia Country Fiche for the detailed description of such amendments collectively known as '5th antimonopoly package'.

2229 Draft of the Federal Law 'Amendments to the Federal Law on the Protection of Competition' <https://regulation.gov.ru/projects#npa=79428> accessed 09 September 2019.

2230 Draft of the Federal Law 'Amendments to the Code of Administrative Offenses of Russian Federation' <<https://regulation.gov.ru/projects#npa=85113>> accessed 09 September 2019.

2231 See Calvano, E., Calzolari, G., Denicolò, V. and Pastorello, S. (2018). Artificial Intelligence, Algorithmic Pricing and Collusion., CEPR discussion paper 13405.

Moreover, one should not forget that market transparency may be advantageous for consumers because they can easily compare prices and find the best offer.

Several authors have addressed the possibilities for achieving tacit collusion equilibrium outcomes by algorithms interacting autonomously (i.e. without any instructions from human agents). They have also opened the possibility for some form of ex-ante as well as ex-post assessment and regulation over the type of algorithms being used by firms.²²³²

Emilio Calvano and others (2018) distinguish three possible policy approaches in face of the threat of algorithmic collusion. The first proposal is 'business-as-usual' approach, where algorithmic pricing is regarded as not posing any new problem that cannot be dealt with by current antitrust legislation. In particular, the legal distinction between tacit and explicit collusion is maintained, as attempting to sanction tacit collusion would remain subject to unreasonably high type I and II errors.

The second approach focuses on *ex-ante* regulation, or supervision, of pricing algorithms, which will have to be carried out by a regulatory agency. This agency would have the power to prohibit certain pricing algorithms that have a 'tendency to collude'. This characteristic still needs to be defined. This second approach is also favoured by Joseph Harrington (2019). The third approach calls for an *ex-post* regulation, or control in the way similar to how competition authorities currently deal with antitrust practices. However, the legal standards will have to be somewhat different from the current ones. Perhaps, these standards will have to take a more assertive view towards 'tacit collusion'. Emilio Calvano and others (2018) seem to favour this third approach, where the legal distinction between tacit and explicit collusion would have to be reassessed.

Joseph Harrington (2019) suggests dealing with the problem of liability by restricting the class of allowable algorithms or by prohibiting algorithms with certain features that support prices above the competitive level. He suggests a three-step procedure, to analyse which types or properties of algorithms should be prohibited. This approach is based on a simulated market, where, under a variety of market conditions, the properties of algorithms that lead to a collusive outcome are determined. This simulation would have to be carried out by the competition authorities or a specialized agency. Such an auditing of algorithms, however, is a challenging task as there are so many different algorithms in use which are constantly either modified by the programmers or by self-learning and which might develop new, not yet prohibited properties that could lead to a collusive outcome. The examination of algorithms will have to be carried out regularly and most likely will result in substantial increase in enforcement costs.

This last concern has also been articulated by Joao Gata in the work published in 2019.²²³³ By using results in the theory of computation, Joao Gata shows that ex-ante assessment

2232 Detailed discussion of the pros and cons of this approach can be found in Joao E. Gata (2019), Controlling Algorithmic Collusion: short review of the literature, undecidability, and alternative approaches, REM Working Paper 077-2019, Lisboa, Portugal.

2233 See Joao E. Gata (2019) in footnote 33 or Gata, Joao E. (1995), Infinite Regression in Strategic Decision Making: An Application of Rice's Theorem, Discussion Paper No. 95/38, DERS/University of York, UK..

and regulation of use of algorithms faces serious challenges to its effectiveness due to undecidability results. He stresses that possibility of “an ever-increasing complexity of algorithms employed by firms would pose a serious challenge to the regulatory agency. Prohibited algorithms could be replaced by new ones that could either escape an ex-ante assessment altogether or ... burden again the regulatory agency.” Joao Gata also stresses that ex-post assessment may be constrained as well, since when a specific ex-post investigation by a competition authority is opened, the investigation will involve simulating the behavior of the set of algorithms employed by the different firms as well as determining the counterfactual level of prices (i.e. prices in the absence of any co-operation in the market prior to collusion). The problem is that market data, at least in part, are produced by the algorithms themselves, and may not reflect the true competitive benchmark.

Further Ulrich Schwalbe in his work published in 2018 proposes that “one could consider the option of incorporating legal provisions and constraints at a fundamental level of each algorithm, similar to the three laws of robotics.”²²³⁴ He also stresses that only algorithms that are unable to communicate should be accepted. Otherwise, smart algorithms, which can observe the pricing behaviour of their competitors, could learn to communicate by sending messages encoded in the prices charged, similar to the code bidding observed in procurement auctions. Also additional problem can arise if sufficiently sophisticated algorithms are able to overcome these provisions.

At a more general level, the options for competition law and competition policy to deal with the increasing threat of algorithmic collusion at the moment seem to be rather limited. Algorithmic collusion could be considered as a violation of competition law only if the concept of an agreement is extended to cover also this new type of collusive behaviour. But even then, serious difficulties remain with respect to the detection as well as the verification of algorithmic collusion.

8.4. Blockchain and Collusion

The most obvious concern, raised by both permissioned and permissionless blockchains, is the possible facilitation of collusion. This may result from the public character of the blockchain and the enhanced data visibility that it offers. Indeed, a key characteristic of the most well-known blockchain technologies, those supporting cryptocurrencies, is that all transactions are visible to all users. This increasing sharing of data may accommodate broader public policy to make data more open and less proprietary (e.g. Open Banking), but data transparency may also facilitate collusion between competitors.

If one takes the example of Bitcoin, it could be argued that miners who validate the blocks of the blockchain and maintain its operation may be considered, to the extent that they form independent undertakings, as possibly entering into a collusive arrangement, when they collectively implement the ‘consensus’ reached by the specific Block-

²²³⁴ See Schwalbe, Ulrich (2018), *Algorithms, Machine Learning, and Collusion*, WP Institute of Economics, University of Hohenheim, Germany.

chain protocol, as long as this lead to an output restricting or price setting. Østbye presents the hypothetical of the currency cap used by the Bitcoin protocol, which limits the number of bitcoins to be released to 21 million.²²³⁵ Could this amount to an illegal output restriction? It certainly consists in an output restriction, but it cannot be illegal unless the restriction results from collusive, not unilateral, conduct. The Bitcoin miners contribute to the operation of the Bitcoin blockchain by validating the blocks, thus, exercising an economic activity, to the extent they may receive compensation for this activity. In performing this activity, they abide by the 'consensus' process put in place by the blockchain protocol: can their activity be qualified as unilateral, or can this be considered as coordination amounting to an antitrust agreement/concerted practice?

A second hypothetical raising similar questions would occur in the context of a decentralized blockchain-based marketplace, where data is exchanged by various industry actors, some being competitors, and where value-added services are provided, such as access to the data pool for training better algorithms. An algorithm based on machine learning may set the prices for data via the blockchain protocol, choosing from multiple pricing models.²²³⁶ Would the fact of sharing and pricing this data through this decentralized blockchain-based marketplace constitute a unilateral conduct? Or should we consider the data providers as entering into some form of collusive information exchange-related conduct?

For an antitrust agreement to be formed, it is required, under EU competition law, but also under all other competition law regimes, that there is evidence of the 'concurrence of wills between at least two parties, the form in which it is manifested being unimportant so long as it constitutes the faithful expression of the parties' intention'.²²³⁷ The case law explains that this 'concurrence of wills' materializes through the existence of an offer and an acceptance. However, the interpretation of these conditions has been quite flexible, and even tacit acquiescence has often been found sufficient.²²³⁸

In the EU, it is also possible that the conduct may fit into the category of concerted practice. In this case, it is not necessary to prove the existence of an offer and acceptance, but one should, at least, bring evidence that the concerted action is 'the result of a consensus', which equally encompasses 'tacit approval'.²²³⁹ Returning to our first hypothetical, although the miners have not explicitly acquiesced to the Bitcoin protocol that imposed this output restriction, the fact that they are continuously contributing to its operation may amount to acquiescence, to the extent that their apparently unilateral activity (e.g. validating a block) requires a mutual reliance that other miners will accept the new block, generated by the miner who has been the first to solve the mathemati-

2235 <<<REFO:WBLN>>>Peder Østbye, 'The Case for a 21 Million Bitcoin Conspiracy' (8 March 2018) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3136044<<<REFC>>>.

2236 Ocean provides an early example of such decentralized blockchain-based data exchange platform: see Ocean, 'A Decentralized Data Exchange Protocol to Unlock Data for AI', <https://oceanprotocol.com>.

2237 Case C-2 and 3/01 P, Bundesverband der Arzneimittel-Importeure eV & Commission v. Bayer [2004] ECR I-23, [69].

2238 Case T-208/01, Volkswagen AG v. Commission [2003] ECR II-5141.

2239 See the discussion in <IBT>Case C-74/14, Eturas UAB et al v. Lietuvos Respublikos konkurencijos taryba, ECLI:EU:C:2015:493, Opinion of AG Szpunar</IBT>.

cal puzzle (in Proof of Work –PoW- systems)²²⁴⁰. By authenticating the transaction, they make sure that the proof string really solves the encryption puzzle, these being considered as equivalent to ‘voting’ in favour of the integration of the transaction in the blockchain. Returning to our second hypothetical, it will all depend on the consideration of the practice of sharing data in the decentralized blockchain-based platform as a form of communication between competitors that may be qualified as a concerted practice, to the extent that it is followed by price parallelism implemented through the use of a common learning algorithm.

In view of the subjective element of collusion that requires some evidence that the colluders are at least aware of the collusive scheme or collusive potential they participating to, it becomes important to examine whether the miners (in our first hypothetical) or the service providers (in our second hypothetical) are aware of the anticompetitive nature of the arrangement. This may be inferred by the fact that in both cases, the blockchain protocol is well known in advance, as it is usually published when the blockchain developers release their white paper and further documentation, and its anticompetitive potential may be, more or less easily, assessed. The Bitcoin cap is explicitly mentioned in the Bitcoin protocol. The situation is not as straightforward with the second hypothetical; it will all depend on the design of the pricing algorithm and how much autonomy it is afforded, to the extent that the service providers may not be able to understand how pricing decisions are made. This issue has raised important questions in recent literature focusing on algorithmic collusion.²²⁴¹ If the collusive outcome is just the result of the use of the system (i.e. the ‘learning algorithm’), without any other objective and consistent indicia of collusion, it is unclear how the practice may fall under the scope of the prohibition of collusive practices, at least as evidence of direct collusion.

An additional possibility to bring this under the scope of competition law is to consider it as a form of indirect collusion orchestrated or maintained by a cartel facilitator. A common characteristic of these situations of indirect concerted practice is that the undertakings in this triangular relation are all concerned with the implementation of the horizontal collusion scheme. This is the case if, for instance, information on future prices is exchanged between competitors through this intermediary, which can be found directly liable for the commission of the infringement, to the extent that the subjective element of the offence is satisfied if the conduct of this intermediary is directly linked to the efforts of the cartellists.²²⁴² This broad interpretation of the direct nature of liability leaves open the possibility of broadly interpreting the concept of ‘indirect’ contact. Could this be expanded to impose a fiduciary duty not to infringe competition law to all blockchain intermediaries if they are involved in, or are in contact, with a DLT system that has led to an infringement of competition? Could one compare this situation to that of the parent-

2240 Each node in the blockchain network must solve a complex, resource-intensive cryptographic problem (‘proof of work’) in order for the transaction to be ‘validated’.

2241 Harrington, J. E. (2019). Developing Competition Law for Collusion by Autonomous Price-Setting Agents., *Journal of Competition Law and Economics*, 14(3), pp. 331-363.

2242 See, for instance, the approach followed by the EU Court of Justice in Case C-194/14 P, *AC-Treuhand AG v. Commission*, [2015], ECLI:EU:C:2015:717, notably para. 38.

company vis-à-vis the conduct of its subsidiaries? This is an important issue, that does not only relate to competition law but more broadly raises the issue of the 'distributed liability' concerning the legal risks emerging from the use of blockchain systems.²²⁴³

Returning to our first hypothetical, it is possible that, in view of their contribution to the day-to-day operation of the Bitcoin blockchain, the miners could argue that, despite not having any employment contract, they are, in reality, operating as employees of the blockchain. If they are qualified as employees, under EU competition law, they cannot then be qualified as an undertaking exercising an autonomous economic activity, in the sense of offering goods or services on a market and bearing the financial risk attached to the performance of such activity.²²⁴⁴ Hence, their activity could not be considered as constituting anticompetitive collusion.

One may nevertheless envisage the possibility where a cartel (i.e. explicit collusion) is enforced, not through law as this would be illegal and would constitute a restriction of competition by nature, but through code, by devising a smart contract that will enforce collusion, in particular, if this is coupled with pricing algorithms that are adjusted automatically when the conditions of the smart contract are satisfied. For instance, it is possible to envisage a smart contract between members of a cartel, which could condition the release of a 'guarantee', paid in cryptocurrency by each of the members of the cartel and kept in an 'escrow account' at one of the digital wallets, automatically if certain conditions with regard to the deviation of prices from the cartelised price are identified by one of the parties to this cartel arrangement. The implementation of this smart agreement could be ensured by algorithms relying on off-blockchain data harvested by oracles. Firms may also constitute a federated blockchain (a 'consortium') where they will exchange data on their prices, output in real time and other sensitive, or non-sensitive information. In this case, the arrangement to establish this federated blockchain will constitute an information exchange agreement/concerted practice, that could be qualified as a restriction of competition if certain additional conditions are satisfied.

The context and the nature of the information exchanged will be particularly important in this context. For instance, strategic information, which relates to prices (for example, actual prices, discounts, increases, reductions or rebates), customer lists, production costs, quantities, turnovers, sales, capacities, qualities, marketing plans, risks, investments, technologies and R&D programs and their results, is more likely to produce restrictive effects to competition than exchanges of other types of information. Historic data is unlikely to lead to a collusive outcome as it is unlikely to be indicative of the competitors' future conduct or to provide a common understanding on the market. However, there is no predetermined threshold when data becomes historic, that is to say, old enough not to pose risks to competition. Whether data is genuinely historic depends on the data's nature, aggregation, frequency of the exchange and the characteristics of

2243 For a thorough discussion, see Dirk Zetzshe, Ross Buckley, and Douglas Arner, 'The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain' (2018) 4 University of Illinois Law Review 1361.

2244 Case C-22/98, Criminal Proceedings against Jean Claude Becu, Annie Verweire, Smeg NV and Adia Interim NV [1999] ECR I-5665.

the relevant market. Finally, exchanges of genuinely public information are unlikely to cause competition law concerns. If the parties form a consortium, this may be analyzed as a cooperative joint venture agreement, under more flexible rules than the prohibition of cartel activity.

One could also think of an additional theory of harm for blockchain-based collusive activity, as a public ledger, visible to all, on which industry data may be published in real time and which could be easily accessible, may *facilitate* collusion. Information exchange may occur at the initial steps of forming a cartel, as the cartelists will need to identify the parameters of their cooperation and the selection of the cooperative equilibrium, for instance, by determining the price or output level of the cartel or of its individual members but may also facilitate the maintenance of the stability of a cartel by supporting the monitoring of any possible deviations from the cartel equilibrium reached by the parties. Would the fact of making data publicly available to a public blockchain constitute, in this case, anticompetitive collusion or would it consist in a unilateral practice that may escape scrutiny?

The issue here would be that the transparency created by the public communication of information between actual or potential competitors in real time may soften competition because it can reduce strategic uncertainty in the market. Again, one may here distinguish between private and public blockchains, the former raising more concerns, from a competition law perspective, than the latter. However, even genuinely public unilateral communication of information between competitors may have the potential to dampen competition, for instance by constituting price signaling capable of facilitating collusion. Again, here the qualification of the practice as collusion will depend on the way the specific competition law regimes deals with price signaling facilitating collusion.

Shifting away from the hypothetical cases and tackling cases currently under investigation, the best available example of possible collusion regarding blockchain and cryptocurrencies is the *UnitedCorp* case, which is pending before the District Court for the Southern District of Florida²²⁴⁵. According to the information available on the case, the plaintiff UnitedCorp sued Bitmain and several high-profile stakeholders on basis of an alleged collusion claim. The facts of the case address that UnitedCorp is a company that offers many blockchain solutions, including cryptocurrency mining systems, which relies on a cryptocurrency known as Bitcoin Cash. By its turn, Bitcoin Cash was a publicly available cryptocurrency that underwent significant changes in 2018, due to a disagreement between its protocol developers. Thus, the cryptocurrency was split in two, known as forks: Bitcoin ABC and Bitcoin SV. At the end, Bitcoin ABC was able to gather larger support and succeeded Bitcoin Cash.

Konstantinos Stylianou reports that UnitedCorp alleges that several players in the blockchain value chain (investors, mining pools, crypto-exchanges and protocol developers) engaged in collusive conducts in order to get miners to support the Bitcoin ABC fork

2245 The Plaintiff's submission to the District Court for the Southern District of Florida can be found here: https://www.morisoncohen.com/siteFiles/files/2018_12_06%20-%20United%20American%20v_%20Bitmain.pdf

rather than the Bitcoin SV fork²²⁴⁶. UnitedCorp submits that the alleged collusion centralized the transactional system and “enabled corruption of the democratic and neutral principles of the Bitcoin Cash network”. In this sense, an alleged consequence of the collusion was that the prices of both forks went below those of the previously unified Bitcoin Cash, resulting in financial harm due to an upsetting of normal market conditions.

There are still many questions opened regarding the case and what its implications will be to antitrust practice and its interface with crypto-economy. The first debate to be cleared is whether or not the plaintiff UnitedCorp has standing under Section 4 of the Clayton Act. Stylianou writes that in order to assess whether there is or not standing, a detailed look into where the Plaintiff fits and its role in the value chain is necessary²²⁴⁷. Questions related to the binding status of Bitcoin’s whitepaper are also raised, due to the allegations that the alleged collusion deviated the mining process from its decentralized and democratic principles. Moreover, the possibility of an exchange to steer transactions from one cryptocurrency to another is also present in the case, considering that UnitedCorp decided to include Kraken, a popular exchange, among the defendants.

The outcome of the UnitedCorp case will certainly have important implications to the analysis of crypto-economy players and how courts assess the structure of the cryptoasset value chain.

8.5. Algorithms: impact on cartel detection, leniency and competition law enforcement against cartels

To detect cartels, competition authorities use retroactive methods, such as signals from whistleblowers, leniency programs, as well as proactive methods like screenings, industry monitoring or combination of both methods.²²⁴⁸ Algorithms may not only affect the way collusion occurs but may also raise interesting questions as to the evolution of competition law enforcement in the digital era. First, they may affect the existing instruments of cartel detection, in particular leniency policy. Second, they may give rise to new tools of cartel detection. Finally, blockchain technology may offer new opportunities to competition authorities for improving their action against cartels.

2246 K. Stylianou, What can the first blockchain antitrust case teach us about the crypto-economy? JOLT Digest. April 26, 2019. Available at: < <https://jolt.law.harvard.edu/digest/what-can-the-first-blockchain-antitrust-case-teach-us-about-the-crypto-economy>>

2247 Stylianou argues that there are at least three possibilities to define the role of UnitedCorp in the value chain: as investor, as miner or as spender. Nonetheless, the author argues that all three possibilities would not satisfy the direct harm requirement.

2248 See OECD. Roundtable on Ex Officio Cartel Investigations and the Use of Screens to Detect Cartels. P. 7. [https://one.oecd.org/document/DAF/COMP\(2013\)14/en/pdf](https://one.oecd.org/document/DAF/COMP(2013)14/en/pdf) For example, FAS Russia and Brazil Administrative Council for Economic Defense use both retroactive and proactive methods for cartel detection.

8.5.1. Implications for leniency policies and detection tools for cartel activity

Both the use of algorithms to monitor and enforce existing agreements and coordination by pricing algorithms themselves not only facilitates tacit and explicit collusion but also makes it more difficult to detect the violations. Detection would become more difficult as there would be fewer opportunities to obtain hard evidence. At the same time, the range of detection tools will have to be expanded including new software screening tools and new regulatory agencies with experience in IT and AI. These agencies should have a capacity and expertise to be able to detect, document and verify the use of prohibited algorithms or algorithms that can be potentially harmful for consumer welfare. Per se prohibition of certain types of algorithms can also be an option.

The implications of autonomous algorithmic collusion by learning algorithms themselves for the design of leniency programs are not very straightforward. Algorithmic collusion does not seem to have a potential to interact with leniency programs as there is no agent who could have reported, since supposedly managers are not aware of near collusive outcomes that algorithms sustain through learning over time. Nevertheless, even if managers notice that this happens and report this to a competition authority, the question arises: would they be able to provide the authority with sufficient evidence to ensure conviction of other cartel members, who supposedly also noticed the collusive outcome sustained by algorithms, but did not report and also did not try to stop the unlawful conduct. Most likely, managers and competition authorities and even new regulatory agencies would already have difficulties to identify which other companies / algorithms are involved.

For other types of practices aided by algorithms the interaction with leniency programs is more straightforward. For collusion facilitated by the use of algorithms (the first possibility identified in Harrington (2019)²²⁴⁹ the current design of leniency programs seems sufficient as in this situation managers are aware of the coordination through the use of similar algorithms. Hence, they can report and obtain leniency or be made liable in case of no reporting. For situations covered by the second possibility identified in Harrington (2019) the design of leniency programs should be revised by extending liability to third party facilitator (such as platform or software developer) and then also allowing facilitator to apply for leniency.

8.5.2. Algorithmic cartel detection

8.5.2.1. Cartel screening: old style

Competition authorities usually rely on 'market-based' evidence focusing on the detection of coordinated oligopolistic price elevation, including 'price patterns' in the industry,

²²⁴⁹ Joseph Harrington, Developing Competition Law for Collusion by Autonomous Price-Setting Agents. (2019) 14(3) Journal of Competition Law and Economics 331-363. See also article entitled "Competition Law and Pricing Algorithms" presented by Joe Harrington at the Bergen Competition Policy conference (BCCELE conference) in April 2019.

evidence of price elevation and facilitating practice.²²⁵⁰ Econometric techniques using a structural approach (focusing on markets with traits thought to be conducive to collusion) have been used to help provide information as to where cartels may be located, as well as logit models or OLS predicting the probability or the number of cartels likely to exist in a specific industry²²⁵¹. Some authors have also emphasised behavioural approaches to detecting cartels, which also require the use of econometric techniques.²²⁵²

Quantitative economic analysis includes, as a first step, an industry analysis with a scoring approach (looking to different variables, such as indicators of price, transparency, concentration and entry) in order to exclude from the sample cases where cartel activity is relatively improbable and, as a second step, a critical event analysis (with a focus on exogenous shocks or structural breaks) testing the collusive against the competitive scenario. The OECD has reported a number of EU member States where cartel investigations were triggered based exclusively on economic indicators.²²⁵³ Most recent research has focused on the role of 'empirical', as opposed to 'structural' screening techniques in uncovering collusive oligopolistic interdependence²²⁵⁴. As it is explained by Abrantes-Metz, '(t)he purpose of screening is not to deliver the final evidence based on which colluders will be convicted, but instead to identify markets where empirical red flags are raised and which are worth further investigations'²²⁵⁵.

8.5.2.2. Cartel screening: existing software tools

Algorithms offer additional opportunities for detecting collusion more accurately on the basis of Big Data evidence. They complement existing digital technologies used for competition law enforcement, such as online whistleblowers tools. Whistleblowers tools are online web forms to inform authorities about competition law violations. Although there have been some earlier examples²²⁵⁶ the EU Commission has introduced this tool

2250 Ibid., 256-285.

2251 OFT773, 'Predicting cartels' (Economic discussion paper, March 2005). For an overview, see P Rey, 'On the Use of Economic Analysis in Cartel Detection', in C-D Ehlermann and I Atanasu (eds), *Enforcement of Prohibition of Cartels*, European Competition Law Annual 2006 (Hart Pub, 2007) 69-82; P A Grout and S Sonderegger, 'Structural Approaches to cartel Detection' in C-D Ehlermann and I Atanasu (eds), *Enforcement of Prohibition of Cartels*, European Competition Law Annual 2006 (Hart Pub, 2007) 83-104.

2252 J E Harrington, Jr, 'Detecting Cartels' (Department of Economics, John Hopkins University, 2005), available at econ.jhu.edu/wp-content/uploads/pdf/papers/wp526harrington.pdf; J E Harrington Jr 'Behavioral Screening and the Detection of Cartels' in C-D Ehlermann & I Atanasu (eds), *Enforcement of Prohibition of Cartels*, European Competition Law Annual 2006 (Hart Pub, 2007) 51-68.

2253 See, for instance, the Italian baby milk case (where a cross-country price benchmarking was used): OECD, DAF/COMP/GF(2006)7, pp 22-24. See also the Dutch shrimps case (structural indicators were employed): J E Harrington, Jr, 'Detecting Cartels', op cit, pp 3-4.

2254 R Abrantes-Metz, OECD Roundtable on Ex- Officio cartel investigations and the use of screens to detect cartels, OECD DAF/COMP(2013)20 (noted omitted), pp 3-4.

2255 R Abrantes-Metz, OECD Roundtable on Ex- Officio cartel investigations and the use of screens to detect cartels, OECD DAF/COMP(2013)20 (noted omitted), pp 3-4.

2256 In 2012 an anonymous online whistleblower tool was implemented by the Bundeskartellamt in Germany. See https://www.bundeskartellamt.de/EN/Banoncartels/Whistle-blower/whistle-blower_node.html Since 2017 anonymous whistleblowers tools exist in EU and UK <https://cma-553899.workflowcloud.com/forms/c35b9608-b73d-464c-bbfa-0b3ccd->

as recently as in 2017.²²⁵⁷ As previously discussed screening relies on an econometric analysis of data. However, by-hand econometrics analysis has limitations, as it solely depends on human resources. The Korean Fair Trade Commission (hereinafter KFTC) observes that investigation of possible collusive bidding solely by humans is difficult, as the information 'was usually sent in written form which made it physically impossible for the KFTC to thoroughly review and analyze it'.²²⁵⁸ Digital technology developments shift manual analysis of data to automatic cartel detection. Software screening tools for cartel detection are applied by competition authorities in Russia, Korea, Brazil and the UK. They are currently under development in Spain²²⁵⁹ and Canada²²⁶⁰.

One of the first software screening tool was implemented in Korea in 2006. This software screening tool called Bid Rigging Indicator Analysis System (BRIAS) automatically analyses bid information obtained from 332 Korean public procurement agencies.²²⁶¹ Amongst the successful BRIAS cases is the detection of collusion in the Seoul Subway Line 7 construction.²²⁶² In 2017 two more software tools for cartel screening were introduced: FAS Russia announced the successful implementation of their software screening tool in mid-2017, and the UK Competition and Markets Authority (CMA) shared an open Screening for Cartels tool at the end of 2017.²²⁶³

To date, the software screening tool developed by FAS Russia detected eighty cartels in e-procurement, including the most serious bid rigging in construction and medical supply e-procurements, which amounted to 197 billion rubles (circa \$2 billion dollars).²²⁶⁴

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2257 European Commission. Press release. March 2017. http://europa.eu/rapid/press-release_IP-17-591_en.htm

2258 [https://one.oecd.org/document/DAF/COMP\(2013\)14/en/pdf](https://one.oecd.org/document/DAF/COMP(2013)14/en/pdf) P. 61.

2259 In May 2018 Spain National Authority for Markets and Competition (CNMC) officially reported the development of screening software in collaboration with professionals in statistics, computer and data science, <https://www.cnmc.es/node/368434>

2260 Matthew Boswell. Bid-rigging Detection and Prevention: Ensuring a Competitive and Innovative Procurement Process. Speech at Canadian Public Procurement Council Forum 2017: Innovation in Public Procurement. November 2017. Matthew Boswell in his November 2017 speech at Canadian Public Procurement Council Forum on innovation announced the development of software screening tool URL: https://www.canada.ca/en/competition-bureau/news/2017/11/bid-rigging_detectionandpreventionensuringacompetitiveandinnovat.html

2261 Korea Fair Trade Commission, Current Status of Operation of Bid Rigging Indicator Analysis System, http://www.ftc.go.kr/www/cmm/fms/FileDown.do?atchFileId=FILE_000000000079626&fileSn=0, Roundtable on Ex Officio Cartel Investigations and the Use of Screens to Detect Cartels, OECD, [https://one.oecd.org/document/DAF/COMP\(2013\)14/en/pdf](https://one.oecd.org/document/DAF/COMP(2013)14/en/pdf) P. 62.

2262 Korea Fair Trade Commission, Current Status of Operation of Bid Rigging Indicator Analysis System, P. 6.

2263 <https://www.gov.uk/government/news/cma-launches-digital-tool-to-fight-bid-rigging>

2264 https://fas.gov.ru/news/1690/export_to_file.pdf (in Russian). Moreover, in addition to eighty cartels detected by FAS Russia software screening tool, this tool has detected one more serious cartel: as accentuated by Andrei Tsarikovsky, Deputy Head of the FAS of Russia, Russian software screening tool called 'Big Digital Cat' detected a cartel at the procurement of road repair in Penza. Penza Office of the Federal Antimonopoly Service of Russia (hereinafter Penza OFAS Russia) charged companies which colluded at the procurement of road repair with a fine amounted to 21 billion rubles (282,511.72 EUR at the official exchange rate of the Central Bank of Russia on 25 February 2019). In 2019 Court of appeal upheld the decision of Penza OFAS Russia. See 'Penza OFAS of Russia Charged Companies with Fine Amounted to 21 Billion Rubles' <<https://fas.gov.ru/news/27230>> accessed 30 July 2019.

The success of the FAS Russia screening resulted in a number of institutional changes with the establishment of a new department specializing in the use of the software screening tool.²²⁶⁵ This software tool was named “Big Digital Cat”, as it detects “mouse”, that is cartels, in the digital age.

The Administrative Council for Economic Defense (CADE) in Brazil also developed the screening tool Projeto Cérebro, which was integrated into the federal electronic procurement system Comprasnet in 2018.²²⁶⁶ Projeto Cérebro helped CADE to effectively detect bid rigging in the supply of implantable cardiac pacemakers.²²⁶⁷

Each jurisdiction takes a different approach in designing and implementing their software screening tools. First, screening tools may address different stakeholders. The CMA developed screening tool not only for CMA related work, but also for public and private procurers.²²⁶⁸ This tool should help procurers to flag suspicious procurement exercises in their tenders and notify CMA for further investigation. However, both the decision to use this tool and CMA notification are at the discretion of procurers. In contrast, in Korea, Russia and Brazil, the software tools for cartel detection aim competition authorities. Only competition authorities have direct access to the software tools implemented into the electronic public bidding systems. These software tools automatically transfer bidding information to the competition authorities. Procurers do not have access to the software screening tools.

Second, most competition authorities keep their screening tools private and share neither its source code nor binary executable. However, unlike most countries, the UK screening software is an open source software available for download by interested persons upon request. The black-box approach chosen by most competition authorities aims to avoid disclosure of implementation details to possible colluders. This secrecy makes it difficult for would be colluders to game the screening tool.

Third, software tools developed by competition authorities have different designs, as they differ in both set of collected bidding information and indicators they analyze.

To the best of our knowledge,²²⁶⁹ all parameters analyzed by screening tools might be grouped into four categories:

2265 <https://fas.gov.ru/news/26154> (in Russian).

2266 Cartel screening in the digital era – CADE Brazil – January 2018 OECD Workshop. <https://www.slideshare.net/OECD-DAF/cartel-screening-in-the-digital-era-cade-brazil-january-2018-oecd-workshop> See also http://www.lickslegal.com/clientalert/Newsletter_Antitrust_January2018.pdf P. 5. [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/LACF\(2016\)19&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/LACF(2016)19&docLanguage=En) p.3

2267 <http://www.cade.gov.br/noticias/superintendencia-instaura-processos-para-apurar-cartel-no-mercado-de-orteses-proteses-e-materiais-medicos-especiais>

2268 CMA launches digital tool to fight bid-rigging. Press release. <https://www.gov.uk/government/news/cma-launches-digital-tool-to-fight-bid-rigging>

2269 The CMA provided us access to the software screening tool source code, as the CMA screening tool is an open software available for download upon request. Thus, we analyzed the CMA screening tool source code in detail. Other software screening tools are not publicly available, and we revised them based on the information publicly disclosed by FAS Russia, KFTC and CADE in the conference proceedings and other publications.

- Number and pattern of bidders;
- Suspicious pricing patterns;
- Low endeavor and similar submissions;
- Tenders' history data.

To find suspicious tenders, the CMA screening tool analyses eight criteria and performs four combination tests. The category *Number and pattern of bidders* carries out the following tests: low number of bidders, which is triggered when the number of bidders is less than three; and single bid test. The category *Suspicious pricing patterns* includes: 1. the "winning price is outlier" test, which is triggered when winning price is more than in one standard deviation away from mean price of all bids; 2. The "similar pricing across bids" test is triggered when ratio of prices mean to standard deviation is less than fifteen; 3. the last criterion analyzed in this category is made up costs. This test verifies that all prices in the bid conform to Benford's law. This criterion is unique across software tools developed by other countries. By analyzing frequency of the first digit, it allows one to find out that the distribution of costs listed in the bid consists of made up numbers rather than real prices. The next category analyzed by CMA software tool is the *Low endeavor and similar submissions*. This category includes the following criteria: 1. The fact that there are same authors in more than one bid, which analyses author name according to the metadata of files submitted by the bidders. 2. The "low endeavor losing bids" test, which evaluates the ratio of submitted documents revision count to time spent editing the document. Both values are extracted from submitted documents metadata. 3. The "similar text in losing bids" test, which compares words frequency of two losing bids weighted by the inverse of overall word frequency in all bids.

Since the CMA tool analyses data of a single tender only, it does not carry out any tests from the *Tenders' history data* category. Each criterion is associated with its weight, which is added to the tender's "suspicious score".

Due to the limitations of such a simple linear score computation model, tool developers enriched the list of criteria by four combination tests. Each combination test relies on two basic tests and is triggered when both basic tests are triggered. The CMA combination tests are the following: similar text and word count in losing bids; low number of bidders and made up prices; winning price is outlier and made up prices; made up prices and low effort. While the linear "suspicious score" model appears to be used in all screening tools under review, only the CMA tool employs combination tests to overcome the limitations of the linear model. This makes the CMA tool more flexible.

The FAS Russia tool's developers declared that it relies on the analysis of fifty criteria.²²⁷⁰ Unfortunately, only few criteria have been disclosed. Unlike the CMA tool, the FAS software analyses tenders' history data in addition to the data of the current tender. This feature enables FAS Russia to detect bid rigging techniques that cannot be discovered

2270 Andrey Tsarikovskii, Alexey Ivanov, Elena Voinikanis, Ekaterina Semenova, Andrey Tenishev, Mukhammed Khamukov. Antitrust Regulation in the Digital Age. Competition Enforcement in the Context of Globalization and the Fourth Industrial Revolution. P. 153. doi: 10.17323/978-5-7598-1750-5 (in Russian).

by analysis of a single tender, for example, bid rotation and bid suppression. In the *number and pattern of bidders* category, the FAS tool executes only the “low number of bidders” test. In the “suspicious pricing patterns” category, the FAS tool analyses the difference between the winning bid price and market price. The FAS tool compares bidders’ IP addresses, sets of fonts used in submission, number of characters in submitted documents, and performs a rich analysis of metadata (comparing authors’ name, time of creation, and software version). There is no evidence that the FAS Russia tool analyzes text similarities (unlike the CMA tool), but it appears to perform a deep analysis of implicit similarities (e.g. IP address, fonts, metadata). This approach turns out to be fruitful, as it helped to detect dangerous collusion in the supply of medical expendables’ procurement, which amounted to 197 billion rubles (circa \$ 2 billion).²²⁷¹ Thanks to analysis of historical data, FAS tool can perform tests from the *Tenders history data* category and detect bid rotation and companies which often win tenders.

The Korean BRIAS is a non-public software tool used internally by the KFTC. The tool automatically collects information from the Korean e-procurement system KONEPS, used by multiple Korean procurers. To detect suspicious behavior, BRIAS checks a small number of bidders’ criteria, and the winning price as the outlier criterion. More specifically, the winning price computes the gap between the winning price and the prices of the second and the third bidders. In the *Suspicious pricing patterns* category, similarly to FAS tool it also analyses the number of bids above the market price. The tool also carries out the test from tender’s history data category and detects companies with a high winning rate. A strong point of the BRIAS is its integration with the national e-procurement system, enabling a completely automated screening pipeline.

Projeto Cerebro developed by CADE Brazil collects data for the analysis from 40 databases including prices and public procurement databases.²²⁷² The collected data is used to perform tests from the suspicious pricing patterns category, such as cover bidding and superfluous losing bidders. It also detects low endeavor and similar submissions by searching for text and metadata (author, IP address) similarities. The tool is also advertised to analyze historical data and detect bid rotation, bid suppression and stable market share.²²⁷³ CADE may use the intelligence gathered in this project as a prioritization tool or to enhance formal cases, such as opening *ex officio* investigations to give basis to a dawn raid.

Table 7.1 summarizes the main features of the discussed software screenings.

2271 FAS Russia Deputy Head Andrey Tsarikovskii emphasized the role of FAS Russia software screening in the detection of collusion behavior in the “VALIRIA” and “Egamed” bid rigging case.

2272 LATIN AMERICAN AND CARIBBEAN COMPETITION FORUM Session III: Promoting effective competition in public procurement -- Contribution from Brazil -- 12-13 April 2016. P.4. [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/LACF\(2016\)19&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/LACF(2016)19&docLanguage=En)

2273 Slides Cartel screening in the digital era – CADE Brazil – January 2018 OECD Workshop.

Table 7.1.: Comparative table of software screening tools

Analyzed criteria \ Screening tool	UK CMA	Russia FAS	Korea BRIAS	Brazil CADE Projecto Cerebro
Number and pattern of bidders	+	+	+	+
Low number of bidders	+	+	+	+
Single bid	+			
Suspicious pricing patterns	+	+	+	+
Winning price is outlier	+		+	
Non-market bids		+	+	+
Winning price is close to start price		+		
Similar pricing across bids	+			+
Made up costs	+			
Low endeavor and similar submissions	+	+		+
Text similarities	+			+
Similar word count	+	+		
Low endeavor losing bids	+			
Metadata similarities	+	+		+
Same fonts		+		
History of participation		+	+	+
Bid rotation		+		+
Bid suppression				+
Stable market share and/or constant winner		+	+	+
Combination tests	+			

We conclude that no screening tool outperforms other screening tools, since each tool has its strong and weak points. For example, the FAS Russia's tool main advantage is deep metadata analysis (e.g. fonts analysis). The Korea BRIAS' tool strong point is seamless integration with the e-procurement system, uniting administrative agencies, local governments and government companies.²²⁷⁴ The CMA tool uses combination tests, allowing it to overcome the limitations of linear model.

This observation highlights the need for collaboration between competition authorities to develop new generation software screening tools. Moreover, all the tools rely on a large amount of rather simple tests, that can be simply fooled by astute colluders. For example, metadata can be simply forged by bidders, thus rendering metadata-based tests useless. Colluders can also fool made up prices test by generating fake costs according to Benford's law. The wider use of screening tools inevitably leads to growth of

²²⁷⁴ P. 62. OECD 2013.

colluders' awareness and the number of attempts to game these tools. This once again emphasizes the need for a collaborative development of new smarter tools by competition authorities, although one may also see some value in the existence of different systems that may be a source of experimentation.

8.5.2.3. Avenues for future development of software screening

Existing software screenings rely on a linear model and use simple tests, mostly easy to deceive by astute colluders. Big data and advanced machine learning techniques might offer a possible solution to this problem, as they provide the possibility to find nontrivial collusive patterns that econometrics could not foresee and they may build non-trivial tests on these patterns. As we mentioned above, the main advantage of current screening tools is the analysis of large amounts of procurement data, which is infeasible if this was done by humans. Advanced machine learning techniques should enable the employment of effective cartel detection criteria on the basis of Big Data which were previously unknown to econometrics.

However, the transition from a linear model with hand-crafted weights to advanced machine learning techniques (such as neural networks or random forests) requires big training data sets containing examples of collusive and competitive behaviour.

The creation of such data sets demands a huge number of man-hours to analyze procurement data and annotate whether it is competitive or not, and thus requires some collaboration between competition authorities. Rosa Abrantes-Metz analyses the possibilities of machine learning aid in cartel detection asking whether "such a data set exist today – with a sufficient number of cases of both collusion and not-collusion, with the necessary data on price, cost, and drivers of supply and demand – or will we have to wait for it?".²²⁷⁵

To our mind, in order to create a training data set containing collusive examples for neural networks and other machine learning methods, competition authorities should share data on cartels gained by the operation of existing software screenings, such as the Korea BRIAS, Brazil Projeto Cérebro, and FAS Russia software screening tools. Moreover, new suspicious behaviour criteria found during analysis of such a data set should also be shared across borders to improve the screening tools of all countries.

Notably, improvement and wider usage of the software screening tools will make colluders polish bid-rigging techniques to make them invisible to these tools. In its turn, the improvement of bid-rigging methods will require the development of better screening tools. Therefore, we are at the beginning of yet another sword and shield competition between competition authorities and colluders. Finally, to discourage over optimistic expectations from screening tools, we want to emphasize that disregarding any progress made in their improvement, screening tools enable to find only *suspicious* behavior.

2275 Rosa M. Abrantes-Metz & Albert D. Metz. Can Machine Learning Aid in Cartel detection? CPI Antitrust Chronicle July 2018. P. 3. <https://www.competitionpolicyinternational.com/wp-content/uploads/2018/07/CPI-A-M-Metz.pdf>

The final decision whether this is *collusive* behavior, should remain with the competition authority.²²⁷⁶

8.5.2.4. The rise of Auction Robots in Electronic Procurement

Electronic procurement provides an illustration of the way information technologies can be used to promote competition, taking a pro-active rather than a re-active approach.²²⁷⁷ Furthermore, electronic procurement platforms are catalysts for the development of cartel detection software screening tools, since these platforms accumulate historical bidding data in a machine-readable format. Electronic procurement systems improve bidding transparency and availability of information for competitors. As the World Bank explains, '(a)utomation of the procurement transactions reduces human error, enhances the integrity of the data, brings in transparency to the Government procurements and facilitates standardization of processes'.²²⁷⁸

Russia launched its electronic procurement system in 2012. This currently concerns a volume of 9 trillion rubles (circa USD 133 billion) worth *electronic* public procurements, whilst the annual public procurement volume is 25 trillion rubles (circa USD 369 billion, 30% Russian GDP).²²⁷⁹ Thus, the e-procurement volume reaches 10% of the Russian GDP. Despite some undeniable successes, e-procurement systems have so far failed to completely eliminate bid rigging from the procurement process. In Russia bid rigging is still up to 85% of cartel offences.²²⁸⁰ According to FAS Russia, cartel damages amounted to 1.5 – 2% of Russian GDP in 2017. Thus, bid rigging damages still amount to 1.3 – 1.7 % of the Russian GDP.

Colluders are in a close technological race with competition authorities to develop software and algorithm-based tools that would enable them to escape competition law scrutiny. An example of such new approaches to collusion is the rise of auction robots used in e-procurement platforms. Auction robots (auction dynamic pricing agent or dynamic bidding software) are software typically built in the e-procurement system so that auction participants can program for a minimum price and reduction step. The pre-configured auction robot automatically submits bids on behalf of the participant, eliminating the need to observe the evolution of the price during the whole auction process and to submit bids manually. Thus, it saves a lot of manpower for companies that participate at multiple auctions at once.

2276 Lianos, Ioannis and Genakos, Christos, *Econometric Evidence in EU Competition Law: An Empirical and Theoretical Analysis* (October 1, 2012). CLES Research Paper series 06/12. Available at SSRN: <https://ssrn.com/abstract=2184563> or <http://dx.doi.org/10.2139/ssrn.2184563>.

2277 See OECD (2017), *Public Procurement for Innovation: Good Practices and Strategies*, OECD Public Governance Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/9789264265820-en>.

2278 World Bank Group. Case Study on eProcurement in GoAP, <http://siteresources.worldbank.org/INTEGOVERNMENT/Resources/APeProcurement.doc>

2279 Head of FAS Russia Cartel Office Andrei Tenishev Shared an Experience on Fighting Digital Cartels, <https://fas.gov.ru/news/24373> (in Russian)

2280 Federal Antimonopoly Service of Russia. Twelfth Annual Report on Competition In Russian Federation. August 2018, http://d-russia.ru/wp-content/uploads/2018/09/12_Doklad_o_razvitii_konkurentcii_FAS.pdf (In Russian).

Auction robots might be either built-in software (like auction robots built in the Russian e-procurement systems Sberbank-AST and RTS-Tender, which automate bid submission), or standalone third-party software agents, which run on users' premises and automate bid submission by communicating with procurement platforms. Such stand alone agents were described in a US patent application²²⁸¹ and are also widely used as eBay auction snipers (e.g. Auction Auto Bidder).²²⁸²

The use of auction robots is not in itself illegal. However, auction robots appear to be not only a tool to automate competitive behavior, but also a tool to automate collusive behavior. The Russian competition authorities (both FAS Russia and Offices of the Federal Antimonopoly Service) have recently dealt with four cases involving auction robots in reverse auctions, that is auctions in which suppliers compete for the buyer and decrease price.²²⁸³

The first case on collusion facilitated by the use of auction robots was decided by the Murmansk Office of the Federal Antimonopoly Service of Russia (hereinafter Murmansk OFAS Russia) in May 2016.²²⁸⁴ In this case two bidders ("ORKO-Invest" LLC and "TSOO" LLC) colluded at 25 e-procurement auctions on solid domestic and medical waste removal. At these auctions "ORKO-Invest" and "TSOO" agreed to maintain high uncompetitive prices by implementing bid rotation – a classic bid-rigging technique. This classic bid-rigging scenario might be performed without any specific software tools. What makes this case special is the auction robots that the companies used to facilitate bid rigging. "ORKO-Invest" and "TSOO" used auction robots built in the electronic procurement system Sberbank-AST.²²⁸⁵ This procurement system provides an opportunity for all bidders either to submit bids manually or to use auction robots to automate bids submission. In this case, colluders preferred to use auction robots in 22 out of 25 auctions. Under the Rules of the Sberbank-AST e-procurement system, any auction participant may use auction robots.²²⁸⁶ Intent to use such a robot and to be bound by the bids submitted by this robot is demonstrated by the electronic signature of the participant. To activate a robot, the participant should set the price decrement step and the minimal price. During the

2281 See patent US7461024B2 "Bidder-side auction dynamic pricing agent, system, method and computer program product", <https://patents.google.com/patent/US7461024B2/en>, and patent application US20130211946A1 "Bidder automation of multiple bid groups or cascades for auction dynamic pricing markets system, method and computer program product".

2282 Auction Auto Bidder, <http://auctionautobidder.com/>

2283 Ray Hackney, Steve Jones & Andrea Löscher (2007). Towards an e-Government efficiency agenda: the impact of information and communication behavior on e-Reverse auctions in public sector procurement, *European Journal of Information Systems*, 16:2, 178-191, DOI: 10.1057/palgrave.ejis.3000677

2284 Decision of Murmansk OFAS on "ORKO-Invest" LLC and "TSOO" LLC bid rigging. Case № 05-03-16/6, <http://solutions.fas.gov.ru/to/murmanskoe-ufas-rossii/05-03-16-6-ebc701b6-df71-4ef4-bb18-4bb972d58ae9> (in Russian). See also Murmansk OFAS decision as of 19 April 2017, <https://solutions.fas.gov.ru/to/murmanskoe-ufas-rossii/05-04-17-5-0e9cea0e-e192-42fd-863a-1eeb6f4a98a7> (in Russian).

2285 Sberbank-AST is an automated trading system integrated with the official unified information system on procurement zakupki.gov.ru, <http://utp.sberbank-ast.ru/> (In Russian).

2286 Sberbank-AST Regulations on Electronic Auctions, https://www.sberbank-ast.ru/Docs/Reglament44FZ_2018.pdf (In Russian).

auction, the robot submits bids once per two minutes. If more than one participant uses robots, these robots submit bids sequentially (i.e. one after another) in the order these robots were created. However, at any time during the auction the participant may switch from the automatic to the manual bids' submission. In 22 auctions "ORKO-Invest" and "TSOO" had created auction robots right after they submitted an application to participate in the auctions. Once the auction robots are set, colluders do not need to adopt any additional action. Hence, auction robots help colluders to automate bid submission and make the process of bid rigging much easier. However, "ORKO-Invest" and "TSOO" ignored the flip side of the bid rigging via auction robots, as these robots provide additional evidence of collusive behavior for competition authorities. In particular, Murmansk OFAS Russia concluded that these colluders used the bid rotation technique: in some auctions "ORKO-Invest" was the winner, as it programed robot for 1% decrease from the start price, while "TSOO" programed its robot for only 0.5% decrease, and vice versa. In each of the 22 auctions these companies used the same collusive technique preselecting the winner and contract price at the moment of the creation of the application. Murmansk OFAS Russia also found that robots configurations and bids for both companies were submitted from the same static IP address. In addition, the competition authority relied on suspicious behavior patterns from the companies, as they used bid rotation scenario via auction robots only when no other companies outside the cartel participated at the auction. However, if other independent bidders took part in the auction, "ORKO-Invest" and "TSOO" actively competed in manual mode decreasing starting price more than twice. This evidence in addition to qualitative evidence e.g. auction documents submitted by colluders that had text similarities made the Murmansk OFAS conclude that the companies had entered into a collusive agreement on price fixing.

In a more recent case decided by FAS Russia in April 2018²²⁸⁷ two companies ("VALIRIA" LLC and "Egamed" LLC) colluded at 14 auctions for the supply of medical expendables for the operations of stenting of coronary, carotid arteries and other operations in 2016.²²⁸⁸ These companies were awarded contracts for 197 billion rubles. "VALIRIA" and "Egamed" preferred to facilitate bid rigging via auction robots in 12 out of 14 auctions. As in the previous case, colluders used built-in auction robots of the electronic procurement platform Sberbank-AST. However, in this case colluders exposed various tactics in different auctions switching between manual bidding or automatic bidding and implementing either bid rotation or a bid suppression technique. First, in five auctions both companies set their robots for 0.5% decrease of the start price. According to the rules of the Sberbank-AST procurement platform, in case the bids are equal, the winning bid is the bid that has been submitted earlier. The rules clarify that auction robots submit bids sequentially depending on the robot's ID assigned at the moment of the robot's creation. In these 5 auctions "VALIRIA" was awarded the contracts, as its robots were

2287 FAS Russia Case № 1-11-166/00-22-17, <https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-30960-18> (in Russian). See also: THE RUSSIAN COMPETITION AUTHORITY OPENS A PROCEEDING AGAINST A CARTEL THAT USED AUCTION ROBOTS (EGAMED), <https://www.concurrences.com/en/bulletin/news-issues/november-2017/the-russian-competition-authority-opens-a-proceeding-against-a-cartel-that-used>

2288 Case against a cartel that used auction robots, <https://en.fas.gov.ru/press-center/news/detail.html?id=52369>

created earlier than “Egamed” robots, and “VALIRIA” robots were considered to have submitted bids earlier than the “Egamed” robots according to Sberbank-AST rules. Second, in four other auctions, “VALIRIA” and “Egamed” used the *bid rotation* technique by setting their robots either to 0.5% decrease for “VALIRIA” and 1% decrease for “Egamed” or 1% decrease for “VALIRIA” and 0.5% decrease for “Egamed”. Third, in yet another auction “VALIRIA” and “Egamed” used the *bid suppression* technique, since “Egamed” set the robot at 1% decrease whilst “VALIRIA” abstained to submit any bids. Fourth, in one auction “Egamed” set robot for 0.5% decrease of the start price, and “VALIRIA” set price at 1% decrease *manually*. Moreover, in one more auction “VALIRIA” set 0.5% price decrease and “Egamed” – 1% price decrease. However, independent parties which took part in this auction continued to compete and decrease price. This made “Egamed” manually set the price decrease at 11%.

In contrast to the previous case decided by Murmansk OFAS in 2016, when colluders used auction robots to automate only the bid rotation technique, in this case “VALIRIA” and “Egamed” used algorithms for more complicated tactics, including bid suppression automation. Likewise to the previous case decided by Murmansk OFAS in 2016, in case at hand the FAS Russia found that “VALIRIA” and “Egamed” robots submitted bids from the same IP address, and both companies used this IP address to sign awarded contracts. Furthermore, companies’ auction applications had text similarities (e.g., in most auctions both companies use the same account – Tanya – to create or modify applications). FAS Russia also proved that the Head of “Egamed” was cofounder of “VALIRIA”.

Significantly, this case provides further details on auction robots’ contribution to prove collusive intent of companies by competition authorities: in this case both companies set auction robots, however they preferred to disable robots and switch to manual mode to actively compete and decrease price when independent participants took part in the auction. The question is whether such a suspicious behavior is intentional or might be justified by market reasons: for example, for all intents and purposes companies could not decrease price in some auctions more than 1% due to costs and other expenses whilst in other auctions (which were auctions with independent participants only by random coincidence) companies could significantly decrease price, as contract costs were not very high for them. Disabling robots and switching to manual mode by colluders provided further evidence for FAS Russia, as robot’s pre-programmed settings demonstrated the colluders’ initial intent to fix price at certain level (at 1% decrease of the start price). Having robots pre-programmed, colluders could not justify their suspicious behavior (such as only 1% price decrease of the start price in the absence of other participants, and a significant price decrease when independent companies participated in the auctions) referring to market reasons, since robots settings programmed before the beginning of the auction showed that companies intended to fix prices as they used to do in previous auctions, and only independent participants which continued to compete made colluding companies to further decrease prices. Notably this case is one of the cases that was detected by the FAS Russia software screening tool.

In 2018, the Offices of the Russian Federal Antimonopoly Service faced two more cases

on auction robots automating bid rigging. Perm OFAS identified suspicious pricing patterns in 10 auctions on the supply of materials for medical laboratories: two companies set auction robots identically at 0.5% decrease of the starting price.²²⁸⁹ As bids were similar, the winner was a company which had created an auction robot earlier, because this robot submitted first a bid under the rules of the procurement system. In this case both colluders cooperated with Perm OFAS and confessed the infringement.

An additional auction robots case is under consideration by Yaroslavl OFAS. In April 2018, Yaroslavl OFAS opened a proceeding against a cartel involving two companies that allegedly colluded at 49 auctions on the supply of reagents and diagnostic preparations.²²⁹⁰ These companies implemented the bid rotation technique facilitated by auction robots set at 0.5% and 1% decrease of the starting price. Notably, in this case the companies colluded at two electronic procurement platforms (Sberbank AST and RTS-Tender) using auction robots built into these platforms.

The review of these auction robots cases shows the evolution of bid rigging in the digital age. It demonstrates that collusion in e-procurement might be facilitated by auction robots. In all cases examined the collusion was a classic “Smoke-Filled Room” bid rigging (overt collusion),²²⁹¹ as colluders entered into cartel agreement beforehand. Despite the traditional nature of the collusion, colluders used new tools – auction robots – to implement bid rigging.

However, the review shows that built-in auction robots may also facilitate the competition authority’s work, since in order to use auction robot the company must submit its settings to the e-procurement platform before the auction begins, thus creating additional evidence, which might assist the authority in proving the intent to collude. However, the use of third-party standalone auction robots (in contrast to built-in robots) does not create such evidence, since the robot runs on the colluders’ premises and its settings can be erased by colluder once the auction is finished.

Auction robots have been used in a number of jurisdictions. 18F (the office of United States General Services Administration aimed to build digital services for US Federal agencies) has experimented with enabling micro-purchase auction participants to bid via API (i.e. allowing bidders to use standalone auction robots).²²⁹² 18F noted that bidding activity in the very first auction opened to robots was much higher than in the previous auctions (7 unique participants submitted 70 bids vs. 5-7 bids submitted by 3-4 participants in previous auctions). However, the final price was higher than the price of the previous auctions. In 18F’s opinion the high final price might be explained by the

2289 Auction robots helped Perm OFAS Russia Identify Bid Rigging at Auctions, <http://perm.fas.gov.ru/news/15409> (in Russian)

2290 Yaroslavl OFAS Order on Cartel Proceedings Initiation as of 29 March 2018, <http://solutions.fas.gov.ru/to/yaroslavlkoefufas-rossii/b-n-63c28800-094e-40f7-bc18-5424a43acaf1> (in Russian)

2291 See, for example, Ariel Ezrachi and Maurice Stucke. From Smoke-Filled Rooms to Computer Algorithms — The Evolution of Collusion, <http://clsbluesky.law.columbia.edu/2015/05/14/from-smoke-filled-rooms-to-computer-algorithms-the-evolution-of-collusion/>

2292 Michael Torres and Alan de Levie. The Role of Bot-Bidding in Micro-Purchase Auctions. 2016, <https://18f.gsa.gov/2016/08/09/the-role-of-bot-bidding-in-micro-purchase-auctions/>

change of auction type due to the robot's presence. Since most of the bids were submitted by robots (including the winning bid which was submitted just seconds before the auction end), the final price was effectively determined by robots' minimum prices which were set by the participants before the auction started. Hence, the open reverse auction collapsed to sealed bid auction. Nevertheless, 18F does not give up and aims to use the learnings from this auction to make electronic bidding platforms convenient for both manual and automatic bidding. In particular, 18F in its future experiments may push forward the auction deadline when the last seconds bid is submitted thus giving human-participants time to react to the new bid.

Whilst auction robots at the Russian e-procurement systems Sberbank-AST and RTS-Tender implement the simplest autonomous bidding strategy known as proxy bidding,²²⁹³ there exist a number of more advanced autonomous bidding strategies that might be employed by the companies in the future. For example, scholars have shown that machine learning methods can be employed to predict bids at government procurement auctions.²²⁹⁴ Such predictions can be used by companies to assess multiple auctions and take part only in the most profitable ones, thus effectively allocating business capacity. Nevertheless, the implications of such advanced techniques on competition enforcement is yet to be explored.

8.5.3. Blockchain and detection of collusion

Blockchain technology does not only set challenges to competition authorities; it also provides a lot of opportunities to assist them in their work. For instance, cartel enforcement may become more effective if DLT is used for the submission of leniency applications, but also in order to handle the sheer amount of evidence usually collected in a competition law case. Access to the file will also be more easily managed, thus, more effectively protecting the rights of defence. Competition authorities and courts may also have access to a data stream kept on blockchain with all the relevant transactions. This could be valuable information in order to provide evidence of a competition law infringement, but also in the context of actions for damages. The availability of this data will also facilitate the monitoring of markets by competition authorities and the early detection of cartels, as well as other anticompetitive activity.

8.6. Conclusion

We have reviewed the contributions indicating that the use of algorithms not only facilitates explicit agreements between firms, it can also result in tacit coordination and, moreover, facilitate tacit collusion. Analysis of the existing models of algorithmic collusion implies that it is possible for independent algorithms to coordinate and sustain

2293 Roth, Alvin E., and Axel Ockenfels. "Last-minute bidding and the rules for ending second-price auctions: Evidence from eBay and Amazon auctions on the Internet." *American economic review* 92.4 (2002): 1093-1103.

2294 J.-M. Kim and H. Jung (2018), "Predicting Bid Prices by Using Machine Learning", *Applied Economics*, http://faculty.morris.umn.edu/~jongmink/research/AE_bidding_2018.pdf

prices close to collusive level.

Both the use of algorithms to monitor and enforce existing agreements and coordination by pricing algorithms themselves not only facilitates tacit and explicit collusion but also makes it more difficult to detect the violations. Detection would become more difficult as there would be fewer opportunities to obtain hard evidence. At the same time, the range of detection tools will have to be expanded including new software screening tools and new regulatory agencies with experience in IT and AI. These agencies should have a capacity and expertise to be able to detect, document and verify the use of prohibited algorithms or algorithms that can be potentially harmful for consumer welfare. Per se prohibition of certain types of algorithms can also be an option. Also other policy instruments, such as e.g. leniency programs, will have to be redesigned.

From the legal perspective we conclude that the current antitrust concept of collusion and its emphasis on communication is not sufficient to take into account all forms of algorithmic collusion. It is probably sufficient for the situations of coordination on pricing algorithms and third-party-pricing. But it is not sufficient for the situation of autonomous tacit collusion by learning algorithms themselves.

The policy options for competition law and competition policy to deal with the increasing threat of algorithmic collusion at the moment seem to be rather limited. Algorithmic collusion could be considered as a violation of competition law only if the concept of an agreement is extended to cover also this new type of collusive behaviour. But even then, serious difficulties remain with respect to the detection as well as the verification of algorithmic collusion.

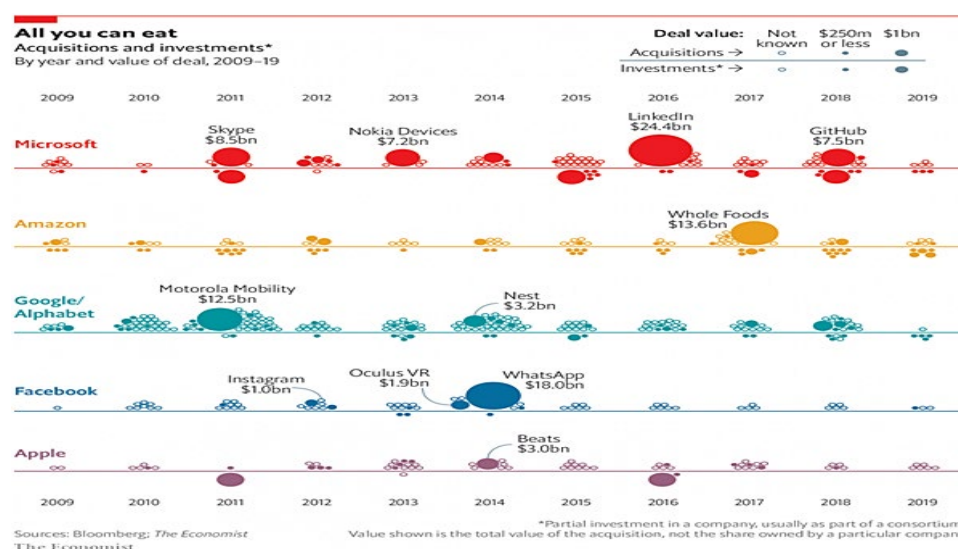
Chapter 9 : Digital Mergers : The Basics

Pierre Régibeau and Ioannis Lianos with the BRICS teams

9.1. Introduction

From Facebook acquiring WhatsApp and Instagram to Microsoft buying out LinkedIn, Skype and Github or Google swallowing Motorola Mobility, DoubleClick or Nest Labs, mergers and acquisitions in the digital economy have been controversial. Some of the concerns have been fairly traditional. For example, would the Skype transaction reinforce Microsoft's ecosystem in the business services area and lead to higher prices for corporate clients? Would Google's capture of Motorola Mobility lead to synergies and more innovation or would it lead to overly aggressive enforcement of standard essential patents? And what of the increased concentration in data ownership that some mergers appear to foster? Big Tech firms, in particular Microsoft, Amazon, Google/Alphabet and Apple have proceeded to a M&A spree and investment in potential rivals and other companies in recent years (see Figure 9.1.) Targets tend to be firms that are four-year-old or younger in nearly 60% of the cases, some recent research showing that 'the median age of Amazon's targets is 6.5 years, that of Facebook's targets is 2.5 years, and that of Google's targets is 4 years'²²⁹⁵.

Figure 9.1.: Acquisitions and investments of Big Tech



Source: *Calls to rein in the tech titans are getting louder* (July 16th, 2019), available at <https://www.economist.com/graphic-detail/2019/07/16/calls-to-rein-in-the-tech-titans-are-getting-louder>

2295 Lear, Ex-post Assessment of Merger Control Decisions in Digital Markets (Final Report, May 9, 2019), available at http://www.learlab.com/wp-content/uploads/2019/06/CMA_past_digital_mergers_GOV.UK_version-1.pdf, ii.

Digital mergers have also brought new issues to light. What are, for example, the implications of some of the more common digital business models or increasingly concentrated data control for the privacy of citizens? How thorough are dominant firms likely to be in ensuring the safety of this data? Who owns the content displayed on digital platforms and who is responsible for ensuring that this content does not violate local Laws on diffamation or incitation to violence? While these “sexier” issues receive great attention in the rest of the report, they are completely ignored in this chapter.

We focus instead on a more prosaic question: does the explosion of the digital economy call for a rethink of how we review mergers or can we pretty much ignore this development and stay the course? Notice that we limit our attention to merger policy. Although the growth of digital technology also has implications for antitrust, we only broach such effects to the extent that they might affect merger control. For example, we do not dwell much on why a business’ reliance on complex algorithms might make it harder to detect and monitor anti-competitive conduct but we discuss what this implies for the standard of proof to be used when reviewing concentrations. In a similar vein, we try to limit ourselves to issues which are closely tied to digital technology. For example, much attention has been paid to the fact that many important digital platforms do not charge final customers for their services. While this “zero price” issue is interesting and has implications for the evaluation of merger effects, this is a phenomenon which arises because platforms must balance the demands and incentives of multiple constituencies. There is nothing intrinsically « digital » about the phenomenon.

We begin, by reviewing the basic principles of merger controls, distinguishing between the economic mechanisms through which mergers can lead to consumer harm and between the aspect of the firms’ behaviour that the transaction might adversely affect. In the following section we define more precisely what we mean by ‘digital’ and identify the specific features of the ‘digital world’ which are most relevant to the process of merger review. Then we provide a quick review of the main merger cases in the digital economy. The following Sections systematically analyse how the main features of digital technology might or might not require material changes in the manner in which Competition Authorities assess proposed concentrations in digital sectors. We begin with market definition and then review the main economic mechanisms and the aspects of the firms’ behaviour discussed. The final Section concludes.

9.2. The Basic Principles of Merger Control

Merger control regimes generally rely on a system of *notification*, where the merging parties must inform the relevant competition authorities of impending transactions if that transaction fulfills a number of criteria linked to the overall “size” of the transaction and its territorial footprint. As a result, mergers involving companies which are small compared to the sectors in which they operate are off the radar.

The vast majority of notified mergers are waved through with only the most cursory review, mostly on the basis of a lack of significant overlap between the merging parties

in terms of products and territories served. From a total of 7,289 merger transactions notified to the Commission between 1990 and 2019, only 29 of them were blocked following a Phase II assessment.²²⁹⁶ This represents less than 0.4% of notified cases.

There are broadly four types of mechanisms through which a merger could harm consumers. Each of these mechanisms can also apply to different aspects of the firms' behaviour, mostly price/output decisions and quality/innovation investments. Let us start with price or output choices.

Before we proceed, though, a warning is in order. The authors have no specialised knowledge of digital technology. While we have made a point of informing ourselves and have learned through our involvement in a number of "digital" cases, we cannot be certain that our assessment of the technology is always perfectly accurate. This in itself contains one an important policy conclusion if Competition Authorities are to monitor the new digital economy – including mergers – effectively they need to endow themselves with the necessary in-house technological expertise. Unfortunately, most competition authorities, including many of the leading ones, do not yet have access to such resources.

9.2.1. Horizontal Overlap and Unilateral Effects

In the absence of efficiencies, any merger between parties selling products which are substitutes and are sold in the same geographic area puts upward pressure on the prices charged by the parties. The rationale for this pervasive effect is now well known. When firm A and firm B are independent, A faces a simple trade-off: setting a higher price means fewer buyers but it also means a higher profit margin on each sale. The profit-maximising price is the price which balances these two effects at the margin. After A and B have merged, some of the sales lost if the price of product A is increased are recovered by product B. Hence, for the merged entity as a whole increasing the price of product A is more attractive than before the merger. The larger the proportion of sales lost by A which is recovered by B, i.e. the larger the *diversion ratio* between A and B the more the merger is likely to lead to a substantial increase in the price of product A. As diversion ratios are larger when the two products are closer substitutes in the eyes of consumers, mergers between firms producing substitutable products are of particular concern.

Anticipating a notable characteristic of the digital sector, the description of the horizontal overlap that we have just given depends on the assumption that a firm sets a uniform posted price for its product(s): every customer pays the same known unit price, irrespective of the number of units purchased. This is why setting a lower price involves a trade-off: the firm gets more sales but has to accept a lower profit margin on the sales that it would have made at a higher price. Once the firm is able to set charge different prices to different groups of customers, this traditional trade-off, which is the basis for our usual notion of "market power", is weakened. Indeed, in the extreme case where a

²²⁹⁶ See <http://ec.europa.eu/competition/mergers/statistics.pdf>.

firm is able to charge different prices (and conditions) for each sale to each individual, this trade-off breaks down completely and there is no market power in the traditional sense of the term.

Does this mean that “market power” is not an issue when market mechanisms other than “uniform posted prices” rule the market? Definitely not. Market power, understood as a supra-competitive margin over costs can emerge under almost all kinds of price-setting mechanisms. Moreover, and this is ultimately what we care about, the vast majority of market mechanisms allow rival firms to put competitive pressure on each other so that the removal of one such rival through merger still leads to upward pressure on prices and hence larger profit-margins and potentially poorer outcomes for consumers. For example, in “auction markets”, where rivals bid for the right to fill a pre-specified order, there is no direct link between the bids that a firm submits to different potential clients, but the level of the bids for each transaction is still constrained by the firm’s desire to undercut rival bidders²²⁹⁷. Similarly in a bargaining context, where each bilateral agreement is as individualised as the parties want it to be, competition from rivals – and thus the profit margins accruing to the seller, work through both “disagreement pay-offs” (what the parties if they keep disagreeing) and outside options (the best pay-off a party can get if it decides to walk away from the negotiations).

In order to assess the magnitude of horizontal overlap concerns, Competition Authorities typically look first at market shares and measures of upward pressure on prices (UPP) augmented by qualitative evidence. In the EU at least, the use of more involved models of industry behaviour, calibrated or estimated, is the exception, not the rule. UPP measures, such as GUPPI or IPR, are particularly well suited to obtain a quick estimate of the likely increase in prices²²⁹⁸ that would result from the internalisation of sales diversion between the merging parties when the parties compete in prices and the merger keeps the total number of products that they offer unchanged. While one can devise measures of UPP for quantity competition, auction markets or even bargaining, they are typically harder to apply as they involve « diversion ratios » which are harder to estimate in practice than those needed for the « price » UPP.

Measures of UPP do not allow us to compare a pre-merger equilibrium to a post-merger equilibrium. This is because measures of UPP only look at the incentives of the merging parties without considering the reaction of rivals. These reactions include both unilateral reactions within the confines of a price or quantity-setting oligopoly and potential entry. Potential entry can cut either ways. On the one hand, the existence of companies with the ability and desire to enter if the merger reduces the intensity of competition sufficiently means that measures of UPP would tend to exaggerate the harmful effects of the merger. On the other hand, the disciplining role of potential entry also means that a merger between two firms who do not currently offer overlapping product can

2297 Indeed, as Klemperer (2000) has shown (Klemperer, P, 2000, “Why Every Economist Should Learn Some Auction Theory”, SSRN Working Paper 241350. there is a formal equivalence between some auction models and models of posted price competition. Also see Bülow, J. and P. Klemperer, 1994, “Auctions Versus Negotiation” NBER Working Paper 4608.

2298 To be precise, we can only go from a measure of UPP to an estimate of likely price increases by making some assumption on the shape of the demand functions faced by the firms.

still raise concerns if one or both partners are seen as likely potential entrants into each others' markets.

Typical remedies when the transaction involves significant horizontal « overlap » are divestment of products and/or productive capacity.

9.2.2. Facilitation of Coordinated Effects

Merger review is a forward-looking exercise. It is therefore legitimate to ask whether the proposed concentration might affect the very nature of competition between the merged entity and rivals. In particular, it is prudent to consider whether the transaction might not make it easier for firms to coordinate (tacitly or not) their pricing/capacity/production decisions, reducing the intensity of competition and ensuring greater profit margins. The firms' ability and incentives to coordinate their actions depend on the possibility of identifying mutually agreed objectives, the ease with which the compliance of the firms with the agreement can be monitored and the parties' ability to discipline any firm straying from the agreed plan of action.

Typically, merger review focusses on three main factors, which are susceptible to facilitate coordination: market transparency, the number of independent firms in the market and the degree of symmetry between these firms. Market transparency is crucial to monitoring. A larger number of firms complicates monitoring and increases the unilateral incentives to deviate from the agreement. Finding a mutually profitable course of action is easier if all firms sell similar products, have similar goals and are of similar size. Greater symmetry also tends to decrease individual incentives to deviate from the agreement.

9.2.3. Facilitation of Abuse of Dominance

In a world where competition authorities have complete information about the behaviour of large companies and where antitrust enforcement is cheap, there would be no reason to consider potential abuses of dominance as actual abuses could be easily dealt with post-merger. However, if the merger is likely to create or enhance a dominant position and abuses of dominant position are difficult to detect and prove, then there is a rationale for blocking the merger even if the traditional effects of the transaction on prices could be remedied. Consider for example two merging companies A and B. Those companies both compete in a downstream market and supply an important input for firms operating in that market. A merger between A and B is therefore likely to increase their incentives and ability to foreclose (partially or completely) other downstream rivals. While one could simply wait and only intervene if the merged entity does pursue such strategies, competition authorities often use the merger review process to impose remedies aimed at preventing such abuses post-merger.

9.2.4. Innovation/Quality

Over the last few years, Competition Authorities have paid increasing attention to how mergers might affect innovation in the relevant markets.²²⁹⁹ The current view seems to be that, absent innovation-specific efficiencies, mergers between parties with overlapping product lines are just as likely to be harmful in innovation-intensive industries than in sectors with less innovation. However, there are two additional issues to consider. Firstly, the range of potential merger-specific innovations to consider is broader than for a traditional, static merger analysis. Not are there potential economies of scale in the conduct of R&D activities but one must also examine the effect of the merger on the diffusion of innovation, the internalisation of spillovers or the resolution of IPR disputes. Secondly, in the presence of significant innovation, mergers can be harmful even if there is no clear overlap between the product lines of the two parties. Such « innovation theories of harm » rely instead on similarities in the merging parties' *ability to innovate in similar scientific areas*. The companies' research "profiles" must therefore also be examined without direct reference to the relevant product markets where the two firms are active.

9.2.5. Efficiencies

Merger-specific efficiencies are decreases in costs and/or improvements in product quality, which are unlikely to occur without the merger. In most jurisdictions, efficiencies are only relevant if they are passed on to consumers. This requirement is automatically satisfied for quality changes but for cost-reducing innovation both the nature of the innovation and the degree of cost pass-through (itself a consequence of the shape of the demand function and the nature of competition) matter. In practice, *expected* changes in product quality are particularly difficult to assess so that competition authorities often focus on the cost side, giving particular attention to changes in variable costs. As we saw above, another set of possible efficiencies needs to be considered when the sector is characterised by significant innovation.

9.3. What does 'Digital' Mean and What does this Imply?

As the name indicates, "digital" relates to anything that relies on numerical coding. This includes all kinds of software and communication of information expressed numerically. Over the course of the last three decades, our technological ability to both process and transmit digital information has increased exponentially. Moore's Law predicts that the number of transistors in a dense integrated circuit doubles about every two years,

2299 On this topic see Federico, G., 2017, « Horizontal Mergers, Innovation and the Competitive Process », *Journal of European Competition Law and Practice*, 8 :10, pp. 668 – 677; Federico, G., G. Langus and T. Valletti, 2017, « A Simple Model of Mergers and Innovation », *Economics Letters*, 157, pp. 136 – 140; Motta, M. and E. Tarantino, 2017, « The Effect of Horizontal Mergers, When Firms Compete in Prices and Investments », Working Paper 17-01, Mannheim University; P. Régibeau & C. Rockett, *Mergers and Innovation*, (2019) 64(1) *Antitrust Bulletin* 31.

showing the rapid increase of computing power over the last few decades. Metcalfe's Law predicts that the value of a telecommunications network is proportional to the square of the number of connected users of the system, thus indicating the important network effects in the digital economy²³⁰⁰. This improved technological ability explains the rapid growth of what we refer to as the "digital sector", while the presence of network effects may explain the concentration observed in the various sectors of the digital economy.

A first salient feature of digital technology is that, for some types of transactions it makes it possible to span long distances at very low cost. This clearly has implications for defining the set of rivals likely to impose a competitive constraint on the merged entity, but it also matters when gauging the likelihood of post-merger coordinated effects. Moreover, when the distance-erasing quality of digital technology makes it possible to deliver the product or the service itself equally readily in many regions or countries, it also lead to an acceleration of industry dynamics. Companies which would otherwise have started on a regional basis before venturing further afield can now be present globally in the matter of a few years, if not months. This means that first mover advantages (e.g. Facebook's network effect) can balloon quickly into a dominance, which is difficult to challenge. The market may easily tipp. In this context, merger policy might want to pay especially close attention to market dynamics and thoroughly scrutinise the acquisition of potential rivals who might challenge such doinance, even if these transaction fall below the traditional thresholds for in-depth inquiry or even for notification.

The second important feature of digital technology is its reliance on algorithms. This has three main consequences. Firstly, algorithms tend to be complex and, as such, they are not very transparent to the non-expert, including Competition Authorities. This makes it harder to assess possibly abusive conducts, which might be facilitated by a merger, but also makes it more difficult to impose remedies which can be monitored effectively. Secondly, algorithms might be (ab)used in order to facilitate coordination between otherwise independent parties, which has implication for evaluating the likely coordinated effects of a merger. Finally, algorithms are data-hungry, for three main reasons : algorithms are good at handling large amounts of data, making data-intensive products and services more attractive ; one needs data to test and refine algorithm and, in the domain of artificial intelligence, data is essential both for the initial « training » of the algorithm and for its continued learning-based development. This naturally leads us to the third feature of digital tehcnology: data, in particular data from different sources that enable the data holders to make better predictions.

There is a close interactive relationship between the development of digital technologies and the increased competitive importance of data. Clearly data is only worth having if it can be used effectively to increase the firm's performance. This requires the ability to *process* data in a meaningful manner. This is where Moore's law matters. But, of course, processing capacity is only useful if sufficient data can be obtained, stored and easily

2300 See Baldwin, R.E., 2019, *The Globotics Upheaval*, Weidenfeld and Nicolson and Oxford University Press, for further analysis of the implications of these laws.

accessed...which itself is getting easier due to various digital technologies such as scanning, cookies, drastic drops in the price of digital storage and the “distance spanning” ability of digital technology which ensures that massive centralised databanks can be plugged into from anywhere on the planet. The implications of this tend for competition policy in general, and merger control in particular are quite varied and fundamental.

Most obviously, the increased importance of data raises the issue of who owns that data. If data become a main source of competitive advantage, then it becomes necessary to prevent rivals from accessing the data to make the competitive advantage sustainable. So the race is on to establish property rights or possession on information which was previously ignored and/or in the public domain. As data become valuable assets, it is natural to ask whether a proposed merger is likely to lead to an undesirable increase in data ownership. In turn, this leads us to contemplate how we should define “data-markets”. This might be a relatively simple task for narrowly “specialised” data (say data on vehicle emissions) but is far less obvious when a given data set (e.g. on consumers’ characteristics and behaviour) can potentially be used for many different purposes. A further complication comes from the fact that, depending on the type of property rights used to protect data, these rights might be national in scope even though, creating a tension between IPRs and the “distance spanning” feature of digital technology.

In order to properly conduct merger reviews in sectors where data are a crucial asset, we also need to better understand the basic economic characteristics of that asset. How large are economies of scale? How fast does data depreciate? What is data actually used for? Are there important synergies between data and some other assets like other IPRs or human capital? Unfortunately we are far from knowing all of the answers to these questions.

Finally, the abundance of usable data does not just affect the nature of the goods and services that can be sold and where they can be sold, it also affects *how* these products can be sold. In particular, an abundance of readily processable data on consumer preferences and behaviour make it possible to move from a business model where most customers faced the same offers to one where both the products made available and their price are tailored to a narrow group of consumers or even to each individual buyer. While we will not discuss the broader welfare consequences of this new marketing model, we must at least consider how the new pricing strategies affect the intensity and nature of competition between rivals. Crucially, does a switch to individualised pricing change our usual presumption that a merger between close rivals put upward pressure on prices and why?

It is also worth noting the “features” that we do *not* see as typical characteristics of the digital sectors. In particular we do not believe that either network effects or “multi-sid- edness” are essential characteristics of the digital world : they are found in a wide variety of non-digital businesses and are absent in a number of digital sectors. Accordingly, we ignore issues which have been a staple of the current debate on digital platforms/ag- gregators, such as “winner takes most” and the juggling of multiple constituencies. Such

issues are clearly important for the assessment of mergers in a number of digital sectors but they are not specific to the digital world.

While “digital” is a convenient headline, the sector includes a great variety of products, both goods and services. It will be useful to group these products into a few broad categories.

This first broad group are “telecom products”. The main function of these products, be it phone, mobile infrastructure or cable is to connect customers. Not surprisingly, these products draw mostly on the increased ability to send information (e.g. voice, data) quickly over significant distances made possible by digitalisation. Because communication requires compatibility between the products used by different consumers, telecom products can only flourish in the presence of widely accepted interoperability standards. If interoperability is less than perfect, then telecom products are also characterised by network effects. It is useful to draw a further distinction within this group between voice communication on one side and data communication and social networks on the other side, as voice communication has not (yet ?) been affected much by the digital revolution. The inclusion of social networks within the “telecom” group might surprise, but we believe that it makes sense since the ultimate function of these networks is to enable various types of internet-based communication between its users.

Our second group is made of “digital sales channels or digital sales platforms”, where customers place their orders remotely through the internet. We further distinguish between the sale of goods or services that can also be *delivered* in numerical format and those that require physical or even face to face delivery. So, for example, music, books, films or photographs can not only be ordered on the internet, they can also be delivered through the same route. This is also true of some services like computer trouble-shooting, banking services or power-point presentation services. By contrast, goods such as food, clothing, tools or furniture require physical delivery. Similarly, a large number of services, like massage, surgery or child minding still rely on the joint physical presence of customers and providers.

In our third group, we include “intermediaries”, i.e. platforms which allow different parties to transact with each other, usually in exchange for a fee. Examples include platforms facilitating commercial transactions, such as Amazon Marketplace and “matching” platforms such as dating sites.

Given its central role in linking the internet-based economy, we consider internet search (fixed or mobile) as a fourth category by itself.

Our fifth group includes “robotics” broadly construed as any technology which allows tasks to be performed with no or minimal human intervention. These products are increasingly controlled remotely and are called to work with an increasing number of complementary products and services. As such, they are directly affected by the distance-reducing feature of digital technology and their performance depends on interoperability. A subgroup of special importance comprises goods and services relying not just on automation but also on artificial intelligence. AI products are characterised by

a large need for data not only as “processing food” but as a necessary part of their creation and continuous development. Moreover, AI can also be used to set important elements of a firm’s strategy, such as pricing, with minimal human input so that our current understanding of these strategies and how they might be affected by a merger might need to be reviewed.

Finally we define a sixth group including the products which are not mostly used for communication or sales but rely themselves on digital technology. This category goes from digital clocks to computers to cars.

In Table 9.1., we combine these six categories with the three most salient features of digital technologies to try to grasp whether the impact of digitalisation is likely to be similar across different types of products and services or whether the importance of the merger’s “digital” dimension varies significantly depending on the type of products involved. The number of crosses in each cell indicates the importance of corresponding digital feature in the corresponding product group.

Table 9.1 : Importance of Digital Technology for Various Groups of Digital Products

	Telecom		Sales Channels / Platforms		Matching/ Intermediation Platforms	Robo- tics	Search
	Voice	Data	Digital goods, remote services	Physical goods, face to face services			
Spans distances		XXX	XXX	X	X/XXX	X	XXX
Data Intensive		XX	XX	XX	XX	XX	XX
Crucial Role of Complex AI-Algorithm			X	XX	XX	XXX	XXX

That digital technology does not affect competition across all types of “digital” activities in a similar manner should already be clear from the fact that the continuing success of the “big four”. Google, Facebook, Amazon and Microsoft each relies on a very different source of competitive advantage : an outstanding search algorithm compounded by data accumulation for Google, first-mover advantage with network effect for Facebook, logistics prowess and scale for Amazon, a core competency in programming/algorithms and a strong position in office products for Microsoft.

Let us go quickly through this table, row by row. The distance-reducing aspect of digitalisation is of little importance for traditional voice communication, where global reach was achieved without advanced digitalisation²³⁰¹ but it is important for the communication of data as well as for the supply of advanced services such as teleconferencing -including its « virtual presence » version- and social networks. The abolition of distance is

²³⁰¹ Of course facilitated by digital switches.

of course essential to search as well as to digital sales platforms, especially those which can also deliver the products for sale digitally. For “intermediaries”, the relevance of distance actually depends on the nature of the service provided : for Amazon Marketplace, the role of distance is the same as for sales platforms, but dating platforms, for example, are inevitably more local. Finally, robotics can benefit from the elimination of distance through two main channels: the ability for centralised remote control and the access to the amount of data and raw “experience” required to get peak performance from artificial intelligence.

Internet sales, social networks, search and robotics are all data-intensive although, as we will discuss below, they rely on somewhat different types of data with different consequences for merger review and remedies.

Finally, the most sophisticated algorithms are found in search, robotics (especially AI) and, to a lesser and varying extent, intermediation platforms. Three main types of algorithms are involved in internet-based sale : algorithms that help tailor customised offers, algorithms to match specific add displays to specific customers in order to maximise “clicks” and, when physical delivery is required, algorithms that handle the inventory and dispatch of the products.

9.4. Main ‘Digital’ Merger Cases: a panorama of the legal issues

We will explore the following issues: market definition, theories of harm and the challenges of employing a more dynamic assessment of mergers for the definition of the counterfactual, standard of proof and burden of proof.

9.4.1. Market definition

Data may play different roles in the digital economy. It may constitute the output of the production process, for instance, supermarket scanner data may be sold as such on the market. It can also be an important input for the production of another product, in which case the accumulation of data by one firm may prevent competitors from accessing a sufficient minimum scale of data, thus affecting the competitive structure and eventually also causing consumer harm. Data as an input may certainly affect the cost of the product, but the use of data may also constitute an element of the quality of a product, to the extent that data protection laws may mandate that the use of data in particular if these are personal data, should be minimised to what is adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed, with the aim to protect privacy²³⁰². In view of the dynamic nature of digital competition, and the complexity of the technologies involved, competition authorities have taken a relatively flexible approach concerning market definition, occasionally not reaching a final conclusion as to the exact scope of the relevant market(s) affected by the merger.

2302 See, for instance, Article 5(1)c GDPR.

We will first explore the approach followed in more mature jurisdictions, in particular the EU and the US, before focusing on the way BRICS countries have assessed market definition in cases involving data or more broadly the digital sector.

9.4.1.1. The EU/US practice on market definition for digital mergers

Two-sided markets: The two-sided dimension of the various platforms involved has been taken into account, although not usually at the level of market definition, where competition authorities have usually assessed each side of the platform as constituting distinct relevant markets²³⁰³. For instance, in *Facebook/WhatsApp*, the Commission identified separate markets on each side of the platform, analysing differently markets relating to users from the social network provider's online advertising activity²³⁰⁴.

Hardware/Software Platform and Applications: Competition authorities when defining the relevant market have also kept the distinction between the hardware, the software platform/operating system and the applications/services layers. In *Microsoft/LinkedIn* the European Commission distinguished between the market in PC operating systems (OS) (excluding from the market OS for other devices in view of a lack of demand-side substitutability)²³⁰⁵, and the applications markets. The Commission analysed the following applications markets: (i) productivity software for PCs (in order to enable users to create documents, databases, graphs, worksheets etc.), (ii) the market for customer relationship management software solutions, which was further segmented on the basis of functionality in sub-markets or on the basis of the type of service (cloud or on premises), (iii) the market for sales intelligence solutions (providing sales professionals with background and contact information about individuals), (iv) the market for consumer communication services, (v) the market for professional social networks, (vi) the market for online recruitment services, and (vii) the market for online advertising services (search and non-search). In *Apple/Shazam*, the Commission distinguished between the markets for devices where Apple was active, the market for operating systems, perceived as platforms for software solutions and/or apps, and various software solutions markets, such as the market in digital music distribution services (without finding it necessary for the specific case to distinguish between streaming providers and music downloading services providers) or the market for automatic content recognition software, including music recognition apps²³⁰⁶.

Consumer communication services markets (involving multimedia communications solutions that allow people to reach out to their friends, family members and other contacts in real time) were considered, in a number of decisions of the European Commission, as forming a different product market than enterprise communications ser-

2303 See, for instance, OFT, *Facebook/Instagram* (2012).

2304 See, *Facebook/WhatsApp*

2305 This in line with Case C-3/37.792 – *Microsoft*; Case M.6381 – *Google/Motorola Mobility* (2012); Case M.7047 – *Microsoft/Nokia* (2014).

2306 Case M.8788 *Apple/Shazam* (2018)

vices²³⁰⁷, in view of the more sophisticated services and additional features offered, such as collaborating tools, integrated voicemail, simultaneous ringing etc²³⁰⁸. In *Facebook/WhatsApp* the Commission further explored if the market should be sub-divided by distinguishing between consumer communication services by breadth of services offered as a standalone app (e.g. WhatsApp, Viber, Skype) or those offered as part of a broader offering such as a social network (e.g. Facebook, LinkedIn). It however rejected the further sub-division by functionality (whether this involved all forms of communication, e.g. photo, text, video, or if this is offered one-to-one and/or group real-time), noting that these services compete on the same market for the same consumers. For similar purposes, it also refused to sub-divide the market by operating system (e.g. proprietary app, such as iMessage on iOS or cross-platform app, such as WhatsApp), as it observed that consumer communications apps available for different operating systems are normally regarded as a single product by users (demand-side) and providers (supply-side). Finally, the Commission considered the segmentation by platform (smartphones, tablets and PCs) most relevant as at the time of the merger WhatsApp was offered only for smartphones and it did not have any plan to expand its offering to other platforms, concluding that the relevant product market included only consumer communications apps for smartphones²³⁰⁹. In *Facebook/WhatsApp* the Commission also explored if the relevant product market should be broadened to include traditional electronic communications like voice calls, SMS or MMS, finding some degree of (imperfect) demand-side substitutability, in view of the fact that these services are used for the same general purpose. However, finding one relevant market was ultimately rejected, in view of the different structure of the market and the competitive constraints, which are only exerted in one direction (as electronic communication services do not constrain consumer communication services), and differences in the pricing models for these services. The geographic dimension of these markets was EEA-wide although the Commission did not exclude the possibility of defining geographic markets at the Member State level, because of differences in the penetration of parties' apps from one Member State to the other, barriers to entry and differences in customer switching, although it concluded that this was not here the case.

Social networks form part of a separate market for social networking services. The Commission examined their substitutability with consumer communication services in *Facebook/WhatsApp*, where it considered that they formed two separate relevant product markets, in particular as the functionalities of social networking services are richer than those provided by consumer communication services. Indeed, social networks tend to enable communication and information sharing with a wider audience (all the contacts of a user unless restricted), whereas consumer communications apps mostly enable one-to-one communication. However, it also noted that the lines between the

2307 See also, Case M.7217 Facebook/WhatsApp (2014), Case M.7047 Microsoft/Nokia (2014), Case M.6281 Microsoft/Skype (2011).

2308 See, Case M.8124 Microsoft/LinkedIn (2017), para. 78.

2309 Note, however, that presently there is a WhatsApp desktop function, although it only operates when connected to the phone through the scanning of a QR code.

two product markets become increasingly blurred. The Commission left open the question whether the social network market should be further subdivided according to the platform (e.g. PC, smartphone, tablet) and the operating system (e.g. Windows, Mac, Android or iOS), as well as with regard to its intended use. In *Facebook/WhatsApp* the geographic dimension of the market was EEA-wide, although the Commission also found indications that the geographic scope for social networking services could be defined as global. The issue was also revisited in the recent Bundeskartellamt decision on Facebook²³¹⁰. Facebook submitted a White Paper on “Relevant Markets and Lack of Dominance” stating that the relevant market for the product concerned was a ‘market for attention’ on which countless competitors competed for the attention of users on the Internet in addition to Facebook. This would at least include the competitors Instagram, YouTube, Google+, Twitter, Snapchat, Pinterest, LinkedIn, Xing and StudiVZ and would be defined as a global market. The Bundeskartellamt nonetheless rejected this theory and concluded that the relevant market was national in view of the specific characteristics of the use of Facebook in Germany (e.g. language etc.)²³¹¹.

Professional networking services form also separate markets than consumer communication apps. The Commission further noted in *Facebook/WhatsApp* that they should not be segmented according to a platform (tablet, PC, smartphone) or an operating system, although it accepted that they should be segmented according to intended use (e.g. social networks promoting interpersonal contact and services used for professional purposes)²³¹². In arriving to this conclusion, the Commission acknowledged that, from the demand side, there are differences in the type of content people expect on these different types of networks (e.g. professional social networks usually include career related information, while personal social networks information on personal interests, friends and family), while from the supply side, substitutability is also limited as it is highly unlikely that a personal social network may develop to become substitutable to a professional one in the short term and without significant investments. The Commission also excluded from the market of (public) professional social networks closed enterprise social networks, as well as vertical professional social networks focusing on certain categories of professionals and accommodating these distinct functions (e.g. the network Academia for academics or Behance for artists), which were not found substitutable to generic professional social networks²³¹³.

Of particular interest is the definition of the geographic dimension of the market for professional social networks as national by the Commission in *Microsoft/LinkedIn*. This was based on the differences in terms of language, functionalities, legal/regulatory requirements and customers’ preferences among EEA countries and due to the fact that professional relations and employment tend to have a more local dimension and use. The Commission also noted that most PSNs active in the EEA appear to focus on a sub-

2310 Bundeskartellamt, Facebook decision (2019), https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Entscheidungen/Missbrauchsaufsicht/2019/B6-22-16.pdf?__blob=publicationFile&v=5.

2311 Ibid., para. 344.

2312 See, Case M.7217 Facebook/WhatsApp (2014); Case M.8124 Microsoft/LinkedIn (2017).

2313 Case M.8124 Microsoft/LinkedIn (2017), para. 109.

set of EEA countries, without having an EEA-wide presence (with the exception of LinkedIn) and pointed to the difficulties for company already offering a PSN in one country to successfully start or expand this in another country without significant investments time and resources²³¹⁴.

Online recruitment services: Occasionally similar services are offered online and offline, thus raising the issue of the distinction between the specific activities in separate relevant markets. The issue was raised in *Microsoft/LinkedIn* with regard to the need to distinguish between the market for offline recruitment services and the market for *online recruitment services*. The Commission observed that jobseekers regarded online and offline services rather as complimentary than substitutable and highlighted that online job advertising becomes increasingly more important than offline job advertising. The Commission noted differences in features such as the fact that online recruitment services allow faster and more comprehensive access to information, or that online services are an impersonal “behind a computer” only experience, whereas offline services consist of a personal contact and relationship (as regards career advice etc.), the superiority of online job ads in terms of efficiency, scope, speed and accessibility etc. Recruiters/employers also agreed that while online recruiting services ‘give the flexibility to announce open positions to a *wider audience*, offline recruitment services focus more on the specific range of people who are suitable to a role, and include face to face interviews, personal interaction and more in-deep analysis of a candidate’s qualification’²³¹⁵. The Commission also examined but left open the question of the further segmentation of the online recruitment services depending on the business model or the relevant industry sector, noting nevertheless that different industry sectors may utilize different channels of recruiting and methods of selection, different customer expectations, different education and experience level, and the level of technicality of the industry and that the nature of the industry and the types of job may even require a different route for recruiting. For instance, lower skilled positions can be filled by means of job advertising, whereas more specialist and skilled roles may require a more proactive approach and reliance on professional recruitment. Finally, the Commission noted that jobseekers did not perceive non-professional social network as an online recruitment tool, while professional social network websites are substitutable to those of an online recruitment tool.²³¹⁶

Online advertising markets: Similar questions have also arisen with regard to the definition of *advertising services market*, in particular for advertising-based platforms. Of particular interest is the US *Google/DoubleClick* case, where the FTC examined the competitive interactions between search engines and publishers with regard to advertising space finding that there is no competition between them²³¹⁷. The FTC explored different types of advertising. In the display advertising market, a distinction was made between premium and non-premium advertisements. Premium ads appear at the top of web-

2314 Case M.8124 Microsoft/LinkedIn (2017), paras 121-125.

2315 Case M.8124 Microsoft/LinkedIn (2017), para. 141.

2316 Case M.8124 Microsoft/LinkedIn (2017), paras 144 to 147.

2317 Statement of the FTC Concerning Google/DoubleClick, FTC File No. 071-0170.

sites, and publishers' direct sales forces sell precise spaces. For non-premium ads, ad intermediation firms indirectly purchase them. Furthermore, premium ads cost several times more than non-premium ads, and websites lack control over where ad intermediation firms place ads. Contextual advertising represents another form. Technology scans the text of web-pages for key words and delivers text ads to pages that consumers are viewing. Advertisers generally do not consider that contextual ads substitute for display ads directly purchased. Both search and contextual ads seek a direct response from consumers. The cost-per-click payment model reveals this objective. By contrast, advertisers utilize directly-purchased display ads for brand advertising. Websites or intermediaries are charged based on the number of times they display the ad. In terms of operating in the same market, the FTC acknowledged that display ads do constrain the price and quality of contextual ads, both sets of ads operating in the same market of ads sold by intermediaries.

In the EU, the Commission distinguished in various cases between the provision of online and offline advertising space, leaving it open if the online advertising could be sub-segmented into search and non-search advertising²³¹⁸. In *Microsoft/LinkedIn* the European Commission examined the substitutability between non-search and search advertising services. LinkedIn only offered non-search advertising services, while Microsoft was present in both non-search and search advertising services. The distinction refers to the targeting dimension of advertising. Targeting in search advertising is based on the exact intent of the user that it revealed by entering the search query²³¹⁹, while for non-search advertising it is based on more general criteria, such as the content of the visited website and the geographical location of the user. Non-search ads may appear on any webpage and can be either contextual (selected according to the content of the page on which they appear) or non-contextual²³²⁰. The Commission left the question open, as well as that of the possible further segmentation of the market, for instance for advertising on social network websites or by device platform. According to the Commission, the geographic dimension of the online advertising market, and its possible sub-segments, is national in scope or alongside linguistic borders within the EEA. In *Facebook/WhatsApp* the Commission again left open the question of whether the market for online advertising could be sub-segmented into search and non-search advertising. It noted the the majority of advertisers held that non-search ads are not substitutable as they serve different purposes: while search ads mainly generate direct user traffic to the merchant's website, non-search ads mainly build brand awareness. The Commission applied the traditional SSNIP test and found that most advertisers would not be likely to switch from one type to another in the event of a 5-10% price increase.²³²¹ With regard to the definition of a separate market for advertising on social network websites, the Com

2318 See, Case M.5727 *Microsoft/Yahoo! Search services* (2010), Case M.4731 *Google/DoubleClick*, Case M.7217 *Facebook/WhatsApp* (2014).

2319 Case M.4731 *Google/DoubleClick* (2008), para. 11.

2320 For an analysis, see I. Graef, 'EU Competition Law, Data Protection and Online Platforms – Data as Essential Facility', Section 4.2.3.

2321 Case M.7217 *Facebook/WhatsApp* (2014), para. 76.

mission noted that these are usually considered more effective than other online non-search advertising due to the highly engaged audience in social networks and targeting opportunities, but nevertheless did not provide a definite answer on this issue.²³²² Regarding a possible distinction between online advertising on different platforms (PCs vs mobile devices) the Commission was more positive, although it left the issue open.²³²³ The Commission again adopted its previous practice regarding the geographic dimension of advertising noting that it can be divided alongside national or linguistic borders within the EEA, although it also mentioned the view of some respondents that, depending on the type of campaign, global companies may also procure advertising space on a broader geographic scale (EEA-wide or even worldwide).²³²⁴

Licensing data markets: In *Apple/Shazam* the Commission investigated the degree of substitutability between the merging parties' data, notably their music data charts from the demand-side, finding the existence of a new *market for licensing music data*, that is data that is actually commercialised, although it did not define a separate market for the data itself.²³²⁵

9.4.1.2. A BRICS perspective

Starting with **Brazil**, CADE will review any merger related to digital platforms markets that meets the legal thresholds (turnover requirements), having authority to approve (with or without restrictions) or block specific mergers. According to the research conducted by the Brazilian team, there were 218 merger cases related to digital economy between 2004 and 2018. The vast majority of the cases were evaluated under the fast-track proceeding, as in any other economic segment, when there were no *prima facie* vertical or horizontal concentration due to the merger. Therefore, those cases were not subject to an in-depth analysis of the relevant markets in the digital economy. Nonetheless, there are some cases worth mentioning.

For example, in *2018MNaspers*²³²⁶ the Authority had to deal with platforms of online food delivery. In order to do so, the General-Superintendence conducted a thorough analysis to better understand the functioning of two-sided platforms and the dynamics of the food delivery marketplace (e.g. it considered offline ordering through phone calls outside the market definition). Also, in the merger between Itaú and XP Investimentos,²³²⁷ involving the largest online open platform for investments, CADE also took into consideration matters regarding two-sided platforms and the dynamics of competition in each different side (i.e. offer of investment products by multiple financial institutions and demand by multiple users). The Itaú/XP case was responsible for shifting CADE's understanding on the investment market, considering two separate relevant markets in

2322 Ibid., para. 77.

2323 Ibid., para. 78.

2324 Ibid., paras 81-82.

2325 Case M.8788 Apple/Shazam (2018), paras 122-124.

2326 Merger n. 08700.007262/2017-76.

2327 Merger n. 08700.004431/2017-16.

the investment business – the “offer” of investment products and the “distribution” of such products by the open platforms for investments and necessarily by the financial institutions themselves.

The Brazilian Authority has its own Guidelines for the Analysis of Horizontal Mergers, originally published in 2001 and later revised in July 2016.²³²⁸ In the chapter regarding the market definition, the Guide lists many elements that play a role in the process of defining the relevant market in both the product and geographical dimensions. CADE usually employs the SSNIP Test to define the limits of the market under analysis. The Hypothetical Monopolist Test is also a tool usually used by the authority to set the boundaries of relevant markets. The Guidelines refer to specificities of technology markets (without providing details in how to adjust market definition in these cases) and recognise that traditional methods of analysis may not capture the anticompetitive effects of transactions in research and development markets²³²⁹.

In **China**, there are only few merger cases concerns digital markets. Some of them are dealt with under simplified procedure where the decisions available are often very short to the extent that market definition is only briefly mentioned. For example, in *2019MShenzhou UCAR* in the individual fiches we provided,²³³⁰ the competition authority only briefly mentioned relevant markets, while in other cases such as *2016MWal-Mart*²³³¹ and *2019MMobileeye Vision*,²³³² market definition is not clearly indicated.

The approach to define relevant markets is articulated in the *Guide of the Anti-Monopoly Committee of the State Council for the Definition of the Relevant Market*. It provides that the scope of relevant markets is predominantly determined by substitution from both demand and supply perspectives. The Hypothetical Monopolist Test can be used as a useful tool. Market definition is much more discussed in the abuse of dominant cases. With regard to the digital market, the most influential and comparatively comprehensive analysis of market definition is involved in the abuse of dominant position case, *2014AQ-iHoo*²³³³. It discusses the role of market definition, as well as the role of the SSNIP test in the assessment of two-sided markets.

In **Russia**, the most significant case is the merger between ‘Bayer AG’ (Germany) and ‘Monsanto Company’ (USA) in 2017-2018. In recent years, Bayer has been actively involved in smart agriculture. In 2015, Bayer purchased the digital agricultural platform Zoner, and in 2016, it acquired ProPlant. Bayer has also recently announced the commercial launch in 2018 of complex digital solutions in the agricultural sector, named

2328 Available at http://www.cade.gov.br/acesso-a-informacao/publicacoes-institucionais/guias_do_Cade/

2329 p. 22.

2330 Shenzhou UCAR/Beijing Baowo [2019] Anti-monopoly Bureau of the State Administration for Market Regulation <http://www.saic.gov.cn/fldj/jyajgs/201905/t20190515_293619.html> accessed 12 September 2019.

2331 Wal-Mart/Niu Hai [2016] Ministry of Commerce <<http://www.mofcom.gov.cn/article/b/c/201208/20120808284418.shtml>> accessed 12 September 2019.

2332 Mobileeye Vision/Volkswagen/Champion [2019] Anti-monopoly Bureau of the State Administration for Market Regulation <http://www.saic.gov.cn/fldj/jyajgs/201905/t20190506_293419.html> accessed 12 September 2019.

2333 Qihoo v Tencent [2014] SPC (2013) Min San Zhong Zi No.4 Civil Judgment <http://www.law-lib.com/cpws/cpws_view.asp?id=200401917814> accessed 12 September 2019.

Xarvio. Furthermore, Bayer is a vertically integrated company which is also involved in different partnerships with equipment manufacturers, such as Bosch. Monsanto is one of the leaders of digital agriculture, having acquired in 2013 Climate Corporation and in 2016 Vital Fields. The company provides services on paid access to plant genetic information. These business segments represent a significant part of the total profits of the company. Interestingly, in assessing the merger the Russian competition watchdog did not follow a static approach focusing on market definition in the various product markets, but took a dynamic perspective defining as the affected markets the “integrated agritech markets” because separate seeds, agrochemicals and digital solutions are not any more that important for the competitive dynamic in this sector due to ongoing technological change. the FAS proceeded to analyse the markets of seeds, agricultural chemistry, and digital farming, while noting the fact that the emerging market is integrated agro tech solutions. All these markets were considered by the FAS Russia in the context of the global value chain approach, with a particular focus on the effects of the merger on Russian agro manufactures (consumers of agricultural products) (vertical competition), as well as on potential competitors of Bayer and Monsanto in the field of supplying such products to agro manufactures (horizontal competition). According to the authority, in view of the dynamic perspective taken it was important to analyse the transformation dynamics of such markets, taking a global perspective, in view of the effect of the global transformation of the sector to the alteration of the competitive environment in Russia in the short and medium term.

In particular, FAS Russia found that the merger affected the Russian market of highly-productive seeds material, which depends on the latest technologies and involves access to big data about genetics (data and data analytics). The merger had also effects on the crop protection market, as well as on the market for digital solutions for agriculture. Thus, in this case FAS has applied new methodology to identify the potential anticompetitive effects of the merger both in the Russian and global markets²³³⁴.

Similarly, in India, in assessing the *Bayer/Monsanto* merger, the CCI considered the global nature of the R&D in seeds, portfolio effects, digital farming solutions and access to platforms²³³⁵. The Indian competition law watchdog has been relatively flexible in the process of market definition, leaving the issue open in most cases involving digital economy issues we examined²³³⁶. The only example of more engagement with market definition

2334 FAS of Russia decision dated 08 November 2017 <<https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropro-myshlennogo-kompleksa/-c084b115-a929-42e7-a5a9-a8362a96e6c4>> accessed 11 September 2019

2335 CCI order dated 14.06.2018 on Combination Registration No. C-2017/08/523; https://www.cci.gov.in/sites/default/files/Notice_order_document/Order_14.06.2018.pdf.

2336 See, for instance, Walmart/Flipkart, available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2018-05-571.pdf; Alibaba.com/SGS, available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2015-08-301S.pdf; eBay Singapore Services Private Limited and Flipkart Limited, available at https://www.cci.gov.in/sites/default/files/Notice_order_document/C-2017-05-505O.pdf; Amazon/Shoppers' Stop, available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2017-12-538.pdf; HCL Technologies Limited/ Geometric Limited and 3DPLM Software Solutions Ltd, available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2016-04-396.pdf; NTT/Dell Inc, available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2016-04-392.pdf; Hulst B.V. (Hulst / Acquirer) and NIIT Technologies Limited (NIIT / Target), available at

involves the acquisition, by Microsoft Corp. and Microsoft International, a wholly owned subsidiary of Microsoft, of substantially the entire the Devices and Services (“D&S”) Business of Nokia Corp. and related arrangements. This includes the mobile phones and smart devices business units. Both companies would also license patent rights to each other. The CCI found that the acquisition related to mobile handsets (including smartphones and tablets) and the operating systems used in them. The CCI distinguished between the various categories of handsets like basic phones, feature phones and smartphones and tablets based on their hardware configuration functionalities, usage and operating system.

9.4.2. Theories of harm

9.4.2.1. Traditional theories of harm resulting from horizontal overlaps and elimination of direct competition

Data mergers may raise traditional competition concerns if the merging entities are rivals on specific product markets affected by the merger in view of horizontal overlaps. The US competition authorities have examined competition concerns in cases involving overlaps between the merging entities when data is the relevant product. Such concerns were raised in the FTC’s challenge of CoreLogic’s acquisition of Data Quick²³³⁷. CoreLogic licenses national assessor and recorder bulk data in the U.S and was seeking to acquire assets and other interests, including DataQuick, from TPG VI Ontario 1 for \$661 million. The FTC defined the relevant market as that for national assessor and recorder bulk data. This type of data covers most properties across the U.S., and it consists of aggregated current and historical assessor and recorder data in bulk format. Purveyors of this data offer it for all properties in covered jurisdictions in a standardized form. It gives information about ownership, status, and value of properties. Parties interested in assessor and recorder data and information can access it from local government offices. National assessor and recorder bulk data customers process the data with proprietary programs and systems to generate internal analyses or to design value-added products. The products include risk and fraud management tools, valuation models, and consumer-focused property websites. Customers of this data cannot substitute regional assessor and recorder bulk data. They cannot combine data offered by regional firms because it will not convey the necessary geographic scope.

The FTC found that the acquisition could increase market power in an already concentrated market. Prior to the transaction, just three rivals competed in this market. DataQuick competed aggressively, offering lower prices and less restrictive contract terms than its two rivals. According to the FTC entry conditions would not have neutralized

https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-2019-04-658.pdf; Visa International Service Association (Visa International) and Indialdeas.com Limited (Indialdeas), available at https://www.cci.gov.in/sites/default/files/notice_order_summary_doc/C-201812620.pdf.

2337 In the Matter of CoreLogic, Inc., Complaint, FTC Docket No. C-4458.

the anticompetitive effects of the acquisition because entry would not occur in a timely, likely, or sufficient manner. Entry requires several years of national historical data and the capabilities to offer “go-forward” national data. A potential entrant could not collect the necessary on-going and historical data cost-effectively. It also could not enter by obtaining a license to use the requisite data because neither company has an incentive to support a new competitor²³³⁸.

The FTC stated that the acquisition probably will substantially lessen competition and create a monopoly, violating Sect. 7 of the Clayton Act, 15 U.S.C. § 18 and Sect. 5 of the FTC Act, 15 U.S.C. § 45. The effects of the transaction would have eliminated direct competition between CoreLogic and DataQuick. It would have also increased coordinated interplay between CoreLogic and the remaining competitor, Black Knight. Finally the acquisition would have increased the prospects that CoreLogic unilaterally to exercise market power²³³⁹. Hence, both the agreement to merge and the acquisition violated U.S. merger law.

Theories of harm linked to the direct competition between the merging entities were also examined by US competition authorities in Google/DoubleClick²³⁴⁰. While Google had been developing a third party ad serving business, it had not released a commercially viable product. All online advertising does not coexist in the same relevant market, since pricing of one type does not constrain pricing of another. Even if it did, the merger would not eliminate direct competition because Doubleclick does not sell advertising inventory²³⁴¹.

In Bazaarvoice/PowerReviews²³⁴², defendant Bazaarvoice, Inc. Had acquired PowerReviews, Inc. in June 2012. Retailers and manufacturers buy product ratings and reviews platforms (PRR platforms) to generate consumer product ratings and reviews online. Bazaarvoice sold the market-leading PRR platform, and PowerReviews constituted its closest rival. No other PRR platform vendor had registered a significant number of customers in the U.S.

PRR platforms permit manufacturers and retailers to “collect, organize, and display” product ratings and reviews that consumers enter online. The platform owners post the information on a retailer’s or manufacturer’s website. Ratings and reviews can increase sales, lower product returns, and draw consumers to the customer’s website. The information maps consumer preferences and behavior, permitting insights regarding inventory purchasing or product design choices. It also can boost a retailer’s or manufacturer’s product ranking on a search engine results page. The algorithms of search engines rank websites with fresh and unique content higher. The PRR platforms frequently update ratings and reviews.

2338 Ibid., ¶ 10

2339 Ibid., ¶ 11

2340 Statement of the FTC Concerning Google/DoubleClick, FTC File No. 071-0170.

2341 Ibid., ¶ 7.

2342 U.S.A. v. Bazaarvoice, Inc., Complaint, Case No. 13-0133, ¶ 1 (N.D. Cal. 10 Jan. 2013).

PRR platform providers offer additional services, including moderation. This consists of focusing a software algorithm on a consumer review to identify inappropriate or fraudulent content. The merging parties offered syndication services, which permit manufacturers to share ratings and reviews with retail partners. The syndication network can display reviews on the retailers' website that a consumer wrote on the manufacturer's website. PRR platforms can feature analytics software that analyzes ratings and reviews, producing valuable information relating to consumer sentiment. The software enables manufacturers and retailers to better identify product design defects or spot consumers who have indicated an interest in marketing efforts.

Vendors and buyers individually negotiate the sales price for PRR platforms. Arbitrage does not occur in this market, in that customers cannot re-sell a PRR platform having purchased it. PRR platform providers set prices based on each customer's demand features. They seek to gather the maximum information about the customer and then offer a price that aligns with its view of the customer's willingness to pay. Suppliers also adjust the price in response to other competitive offers.

The FTC defined the relevant product market as PRR platforms that retailers and manufacturers utilize²³⁴³. It then said that the transaction will empower Bazaarvoice to profitably increase price on retailers and manufacturers located in the U.S.²³⁴⁴. Bazaarvoice acquired additional market power because the transaction removed its most significant rival. Potential customers regularly received competing quotes from Bazaarvoice and PowerReviews during contract negotiations. The competitive pressure that PowerReviews exerted frequently resulted in substantial price discounts, "sometimes in excess of 60 percent"²³⁴⁵. PowerReviews marketed itself as a low-price alternative to Bazaarvoice and actively courted Bazaarvoice's biggest clients. Even without winning a customer's business, PowerReviews' prices often set the ceiling on Bazaarvoice's offers, materially compressing its margins.

The FTC proffered evidence of the market power that the acquisition generated by referring to the Internet Retailer 500, an annual ranking of the 500 largest internet retailers in North America based on online sales revenue. In this grouping, more than 350 retailers display ratings and reviews. About 70 percent of these undertakings have bought PRR platforms from Bazaarvoice or PowerReviews. Most of the remaining websites rely on in-house PRR solutions²³⁴⁶. However, this option counted as impractical and cost-prohibitive for many retailers and manufacturers.

In addition to removing price competition, the acquisition was found to reduce quality competition that produced differentiation, new features, and that improved the functionality of the platforms²³⁴⁷. For instance, while Bazaarvoice constructed the first review syndication network that connected manufacturers and retailers, PowerReviews

2343 Ibid., ¶ 30.

2344 Ibid., ¶ 31.

2345 Ibid., ¶ 42.

2346 Ibid., ¶ 36

2347 Ibid., ¶ 50,

designed an open content syndication platform that enabled syndication between non-client manufacturers and retailers on the PowerReviews platform. After initially resisting customer pressure for similar features, Bazaarvoice relented and syndicated content to PowerReviews' retailers.

The FTC determined that entry or growth by rivals probably will not counteract the competitive harm that the transaction caused. Bazaarvoice benefitted from substantial entry barriers²³⁴⁸. The leading entry barrier consisted of a network effect in the form of Bazaarvoice's syndication network. The more manufacturers that buy Bazaarvoice's PRR platform, the more attractive the platform is to retailers, offering access to more ratings and reviews. This dynamic also works in the opposite direction, because more retailers permit manufacturers to syndicate content to more retail outlets²³⁴⁹. Before an initial public offering, Bazaarvoice publicly stated that it operates in a "winner-take-all" market. Most of the biggest retail clients already have bought-into Bazaarvoice's platform. By acquiring PowerReviews, Bazaarvoice extended the scope of its network and precluded fringe rivals from gaining the scale necessary to compete. The weakness of rivals further was found to raise switching costs²³⁵⁰.

Similar elimination of direct competition concerns because of horizontal overlaps were raised in CCC/Mitchell concerning \$1.4 billion merger transaction between CCC Information Systems Inc. (CCC) and Mitchell Int'l, Inc. (Mitchell) that would leave just two major suppliers of U.S. partial loss estimation systems (estimatics) and U.S. total loss valuation systems²³⁵¹. The FTC argued that this merger to duopoly would permit the merged undertaking, or the remaining two undertakings together, to exert market power, increasing prices while product quality and services would decrease. Estimatics are electronic systems "consisting of software and a database of U.S. passenger automobile parts, part pricing, and repair times". Customers purchase estimatics to determine an initial estimate to repair cars that have sustained damages in accidents. TLV systems constitute electronic systems with software and databases that list local market comparable values that its owners update frequently and that insurance regulations in all states accept. TLV systems add efficiency to the claims process and reduce time to settlement.

According to the FTC, the merger would have secured for the combined entity more than half of the sales in both the estimatics and TLV systems markets. The merger would have reduced the number of major competitors from three to two. This increase in concentration alone justified a presumption of anticompetitive effects. With regard to the theories of harm the FTC contended that the transaction would have eliminated direct competition between CCC and Mitchell, and would have facilitated coordination with the remaining supplier, Audater. The merger would have harmed insurance companies, repair shops, and American car owners.

2348 Ibid., ¶ 55.

2349 Ibid., ¶ 56.

2350 Ibid., ¶ 58.

2351 In the Matter of CCC Holdings Inc. and Aurora Equity Partners III L.P., Complaint, FTC Docket No. 9334.

The FTC viewed entry as difficult, costly, and risky due to the time and expense of building a viable database covering most cars on U.S. roads, of creating the requisite software, and of building the reputation for delivering accurate repair information. It would have also taken more than two years. Finding that the merger would substantially lessen competition, the FTC argued that it violated Sect. 7 of the Clayton Act, 15 U.S.C. § 18, and Sect. 5 of the FTC Act, 15 U.S.C. § 45.

One may also refer to the Verisk/Eagleview case, challenged by the FTC because it would have eliminated the largest and most capable rival for rooftop aerial measurement services and reports that customers use for insurance purposes²³⁵². The acquisition would have extinguished direct competition in Rooftop Aerial Measurement Products and between the transaction parties and post-transaction, Verisk would have constituted the only significant firm in the industry, with a fringe remnant holding 1 percent of sales in the market.

The target of the acquisition, Eagleview, controlled nearly 90 percent of the relevant market. Verisk held the critical technology, owning the dominant software platform that insurers access to use Rooftop Aerial Measurement Products and to estimate property damage claims. It also sold data analytics services. Eagleview collected aerial image data and sold that data to the insurance industry separately and as an input to Rooftop Aerial Measurement Products. Customers bought reports and information that permitted estimating the costs of repairing or replacing a rooftop.

The FTC defined the relevant product market as the sale of Rooftop Aerial Measurement Products for insurance reasons. Market power could persist in the market partially because insurance carriers will not switch to manual measurements in response to a small but significant non-transitory price increase. The transaction would give the combined undertaking a market share of 99 percent, with no meaningful rivals²³⁵³. The post-acquisition HHI would sail above 9900, increasing by more than 2000 points and amounting to over 7000 points above the threshold that the Merger Guidelines use to presume an illegal transaction.

Entry barriers would also have prevented rivals from cutting-into the combined entity's market share. The FTC stated that entry, repositioning, or fringe firm growth did not qualify as timely, likely, or sufficient to deter or neutralize the anticompetitive effects of the transaction. Potential rivals and the fringe lacked strong relationships with insurance carriers, needed to develop software that can compete with Verisk's dominant software, had weak revenue incentives to vigorously defend against patent infringement claims by Eagleview, which vigorously asserted them, and would need to earn product acceptance by the insurance industry. An additional entry barrier included access to a national library of high-resolution images and data²³⁵⁴. Consequently, the FTC found that the acquisition agreement and the acquisition itself violated Sect. 5 of the FTC Act, 15 U.S.C. § 45, as well as Sect. 7 of the Clayton Act, 15 U.S.C. § 18.

2352 In the Matter of Verisk Analytics, Inc., Eagleview Tech. Corp., Complaint, FTC Docket No. 9363.

2353 Ibid., ¶ 29.

2354 Ibid., ¶ 45.

9.4.2.2. Preventing potential/nascent competition theories of harm

Despite the relatively static perspective of the traditional competitive analysis performed in merger control, as there is significant emphasis put on the actual or potential (but within a short period of time) contestability of the markets affected, theories of harm relating to preventing ‘actual potential entry’ have been in vogue recently. Actual competitors are certainly considered in the operation of the definition of a relevant market that may be affected by the merger.

In the EU horizontal merger guidelines, a merger where the target firm is not competing in the same relevant market of the acquiring firm can still give rise to a significant impediment to effective competition (SIEC), whether non-coordinated or coordinated, if there is a realistic prospect that the former could decide to enter the market in the near future but for the merger in question.²³⁵⁵ The threat of entry is stronger where the target company already has, or is very likely to acquire, the availability of assets that could facilitate entry, such as a distribution network which overlaps with the one used by the acquiring firm.²³⁵⁶ Evidence of actual plans to enter at an advanced stage would point towards that conclusion.²³⁵⁷ However, the likelihood of a SIEC is reduced, if there are a sufficient number of potential competitors left able to discipline actual competitors.²³⁵⁸

Usually, EU competition authorities have taken a relatively narrow time scale for considering potential competition. To be an effective threat, potential competitors should be able to enter within two years and on a sufficient scale.²³⁵⁹ This can lead to ignore the possibility of potential entry into a market if the time scale of this entry may be longer than two years. The difficulty resides in finding evidence that the potential competitors may have such plans and that these are credible enough to influence the competitive strategies of the merging firms. Extending the time scale to a longer period than two years may lead to a high degree of uncertainty and increase the risk of arbitrary decision-making.

However, there can be circumstances where the threat of potential competition is less palpable but where a merger may be thought to give rise to a SIEC. It is often argued that the valuation of internet start-ups is very subjective due to the elusive nature of the key intangible asset underpinning their business model, that is, the acquisition of a large customer base. To this end, firms typically attract users by offering their services for free, thus incurring material operational losses for a number of years before the prospect of turning the venture into a profitable business. Furthermore, it is argued that once the customer base is in place, it is easier to launch new services thanks to the availability of a critical mass. Similar conclusions may be reached with regard to the possibility of a market becoming contestable in a medium term (e.g., five years), this assessment being based on the “idiosyncratic rent-earning resources” and capabilities,

2355 EU Horizontal Merger Guidelines [2004] OJ C 31/11, para 58.

2356 Ibid., para 59.

2357 Ibid., para 60.

2358 Ibid.

2359 Ibid., paras 74 and 75.

such as specific innovation and technological capabilities, that few other undertakings may have, that could provide them an advantage in entering a specific market, in particular if the structure of the industry is that of a global oligopoly. In this case, it is possible to argue that such resources and capabilities should be taken into account, even if there are no established plans or plans in the making to enter the specific market. But of course, such an approach will be subject to the criticism of considerably expanding the discretion of competition authorities to intervene, or not.

There has nevertheless been some evolution in the way potential competition has been considered in the context of mergers, in particular with the recent turn of focusing on innovation effects. It has been alleged that many established companies proceed to “killer acquisitions” buying out smaller start-ups or small and medium undertakings with the aim to discontinue the development of the targets’ innovation projects that may challenge their dominant position, thus pre-empting future competition²³⁶⁰ and this beyond the time period of two years usually considered. Indeed, if an additional investment in R&D by a potential entrant reduces the expected profits of a rival (and vice versa), because of its business stealing effect, then a merger between these two firms may internalise this negative externality, and reduce innovation. In this context, the European Commission has looked beyond the R&D pipeline to explore the dynamic resources and capabilities of the specific firms to innovate and the development of specific “lines of research.”²³⁶¹ It has looked, for instance, to investment in basic R&D that may with some degree of probability become eventually profitable, even if this probability remains limited, for instance 10%. This approach seems to expand both the locus and the time period that is usually considered in assessing actual or potential competition, as the Commission has examined the overlaps between the parties, not only at the level of innovation spaces, by looking to “early pipeline projects” and “lines of research,” but also at the level of the industry. The Commission has indeed taken into account the global characteristics of R&D organisations, that is, the resources, personnel, facilities, and other tangible and intangible assets dedicated to research and development.²³⁶² If such a broader analysis may be perfectly justifiable in order to assess the innovation effects of the merger transaction and reduce the likelihood of “killer acquisitions,” it would also make sense to adopt a similarly flexible perspective when assessing potential entry when this could constrain the pricing strategies of the merged entity. Unless one is to consider that price effects would merit a different approach than innovation effects. This could make a difference in some cases, in particular if it is reasonable to expect that the future competitor may have the incentives and ability to enter the market in the medium term, on the basis of its tangible and intangible assets, idiosyncratic resources and capabilities, possibly in view of some history of previous expansion in other geographic markets.

2360 Some analysis in the pharmaceutical sector argues that more than 6% of acquisitions every year are “killer acquisitions”: see C. Cunningham, F. Ederer, and S. Ma, *Killer Acquisitions* (2018), available at: http://faculty.som.yale.edu/songma/files/cem_killeracquisitions.pdf.

2361 A theory that has, for instance, influenced the approach of the European Commission in *Dow/DuPont*: European Commission, Case M.7932 *Dow/DuPont* (2017).

2362 *Ibid.*, para. 1957.

The effects of the merger on potential competition coming out from start-ups has also attracted the attention of the US competition authorities, which have, at several occasions, explored the application of the “actual potential entrant” doctrine.

The merger transaction between Questco and Mallinckrodt provides an illustration²³⁶³. The FTC and several states filed a complaint against Questcor for purchasing the rights to a drug that represented a nascent competitive threat to its monopoly (Mallinckrodt had acquired Questcor in August 2014). Questcor’s Acthar, a therapeutic hormone (ACTH), represented the standard of care for infantile spasms, which involved seizures during the first two years of life. The drug also treats a kidney disorder, nephrotic syndrome (NS). In 2001, Questcor purchased Acthar from Aventis for \$100,000 plus modest royalties. Aventis had charged \$40 per vial for Acthar. Questcor has increased the price by 85,000 percent, to over \$34,000 per vial. A course of Acthar treatment can cost over \$100,000. Doctors in Europe, Canada, and elsewhere treat patients suffering from the same conditions with Synacthen Depot, a synthetic ACTH drug. Acthar and Synacthen have approximate biological activities and pharmacological effects. Novartis determined to sell the rights to market Synacthen in the U.S. in 2011.

Questcor viewed Synacthen as a significant potential competitive threat to Acthar. During the bidding process held in June 2013, Questcor paid more than other companies to purchase the U.S. rights to Synacthen. The FTC characterized Questcor’s bid as a defensive purchase that it pursued to protect its monopoly over ACTH drugs in the U.S. The acquisition harmed competition by preventing a potential rival from developing Synacthen and launching it in the U.S.²³⁶⁴. The FTC stated that Questcor had monopoly power in the U.S. with Acthar, pointing to direct evidence including supra-competitive prices and the fact that it had restricted Acthar’s output. The FTC also sought to establish monopoly power with indirect evidence that indicated that Acthar maintained a dominant share of the market for ACTH drugs. Substantial barriers to entry protected that market²³⁶⁵.

Concerning direct evidence, the bidders for Synacthen expected to sell the drug profitably at a price materially below Acthar’s price, indicating that Questcor sold Acthar at a supra-competitive level. The expectation of sizable duopoly profits was substantially below the monopoly rents that Questcor was extracting. Questcor’s strategy of curtailing the output of Acthar and charging a high price caused health insurers to narrow Acthar’s usage to those for whom no effective therapeutic options remain.

In terms of indirect evidence of Acthar’s monopoly power, Questcor had not experienced any competitive constraints on its ability to increase the price of Acthar to supra-competitive levels. It did not price Acthar relative to rival drugs that treat the same indications. Acthar had secured a 100 percent share of the market for ACTH drugs in the U.S. Furthermore, the FDA has not approved any other ACTH drug for therapeutic

2363 FTC v. Mallinckrodt Ard Inc., Complaint for Injunctive & Other Equitable Relief, Civil Action No. 1:17-cv-00120 (25 Jan. 2017).

2364 Ibid., ¶ 8.

2365 Ibid., ¶ 20.

use. High entry barriers also existed in the U.S. ACTH market. To develop a similar drug containing ACTH (natural or synthetic) that qualifies as stable, safe, and effective would demand significant time, cost, and effort, along with a notable risk of failure. The steps necessary to enter the market increased in difficulty and risk²³⁶⁶.

The specific act that the FTC alleged that produced anticompetitive effects was acquiring Synacthen. Questcor's bid consisted of substantially more guaranteed money than rivals had offered, which ended the bidding process. While the FDA had not yet approved Synacthen, rendering it a preclinical drug, Questcor recognized the threat it posed to its pricing model as early as 2006. It approached Novartis about acquiring Synacthen in 2009. The three rival bidders for Synacthen had the necessary pharmaceutical expertise and financing to succeed in bringing the product to market. They conducted due diligence and wrote business plans and regulatory approval strategies. The Synacthen assets represented a proven formulation of the drug. Medical professionals used the assets to treat patients safely and effectively worldwide for decades. The Synacthen assets thus had a strong possibility of enabling an entity to commercialize a synthetic ACTH therapy in the U.S. A buyer would not have needed to create a synthetic drug *de novo* or develop the manufacturing and testing protocols attendant to producing the drug. In comparison to the three alternative bidders, Questcor had developed limited plans for Synacthen and had done little due diligence prior to submitting its bid. Questcor claimed it bought Synacthen to market the drug for non-Acthar applications. The FTC did not believe this claim due to the similarities between the two drugs, asserting that Questcor could have pursued the same therapeutic indications with Acthar²³⁶⁷. Consequently, the FTC alleged two counts: (1) the maintenance of monopoly power through acts that constitute unfair methods of competition that violation § 5(a) of the FTC Act, 15 U.S.C. § 45(a). (2) The same acts constituted monopolization that violates § 2 of the Sherman Act, 15 U.S.C. § 2.

A similar nascent/potential competition issue was raised in the FTC's challenge of Nielsen's proposed acquisition of Arbitron²³⁶⁸. At the time of the acquisition, Nielsen sold audience measurement services, including television and cross-platform capabilities, to content providers, advertising agencies, and advertisers. Arbitron sold various audience measurement services, including radio and cross-platform capabilities, to content providers, advertising agencies, and advertisers. Nielsen sought to acquire Arbitron for about \$1.26 billion.

The FTC viewed the relevant market as the market for national syndicated cross-platform audience measurement services. Advertisers utilize audience measurement services to identify programming content across platforms (TV & online) that target audiences probably will enjoy, to place advertising, and to offer other media buying options. Media companies use the same services to value their advertising inventory and to inform programming decisions.

²³⁶⁶ Ibid., ¶ 32.

²³⁶⁷ Ibid., ¶ 51.

²³⁶⁸ In the Matter of Nielsen Holdings N.V. and Arbitron Inc., Complaint, FTC Docket No. C-4439.

The FTC stated that the relevant market was nascent. At the time of the Complaint, a commercially available national syndicated cross platform audience measurement service did not exist. Nielsen and Arbitron have the best opportunity to develop that service because they are the only companies that maintain large, representative panels that can measure television with the necessary individual-level demographics. Advertisers and media companies prefer this source.

Discussing entry conditions, the FTC expressed the view that sufficient and timely entry or expansion into the relevant market probably would not deter or counteract anticompetitive effects that the acquisition creates. Recruiting a representative panel of individuals and developing the technology necessary to produce the data to measure the attention of television audiences requires significant funds and time²³⁶⁹.

In evaluating effects, the FTC opined that the acquisition would substantially lessen competition and tend to create a monopoly in the market for national syndicated cross platform audience measurement services. Specifically, it would eliminate future competition between Nielsen and Arbitron. It would increase the probability that Nielsen would exercise market power and raise prices for audience measurement services²³⁷⁰. Consequently, the FTC found violations of Sect. 5 of the FTC Act, 15 U.S.C. § 18.

Potential competition theories of harm may nevertheless face difficulties to be confirmed by the courts. Although this case is not related to the digital economy, the FTC experienced difficulties in relying on the “actual potential entrant” theory of harm when assessing the purchase by U.S. medical technology provider Steris Corp of British sterilization services provider Synergy Health Plc, which was opposed by the FTC mainly for potential competition concerns²³⁷¹. The FTC alleged that the transaction would hurt customers by eliminating likely future competition based on new sterilization technique, in particular as there was evidence that Synergy had scrapped its plans to enter the U.S. market and open U.S. plants that would use x-ray to sterilize medical devices, which would have competed with Steris plants that use gamma rays for the sterilization process. This theory of harm was nevertheless ultimately rejected on fact-related grounds by a federal court in Ohio, the Court finding that the FTC had failed to carry its burden of proof by a “preponderance of the evidence” and that the scrapping of Synerfy’s plans was explained by the fact that it found few customers interested in signing up. The FTC decided not to appeal²³⁷². Hence, successfully implementing “actual potential entrant” related theories of harm requires some preparatory conceptual work at the level of the reviewing courts.

9.4.2.3. Vertical theories of harm: Foreclosure

In *Google/DoubleClick*, the Commission unconditionally cleared Google’s acquisition of DoubleClick as it concluded that the transaction would not give rise to competition con-

2369 Ibid., ¶ 11

2370 Ibid., ¶ 12

2371 In the Matter of Steris/Synergy Health, Complaint, FTC Docket No 9365.

2372 Federal Trade Commission v. Steris Corporation and Synergy Health PL, (N.D. **Ohio** Sept. 24, 2015).

cerns on any of the relevant advertising-related markets. The merger transaction concerned Google, the leading provider of ‘sponsored search’ advertising (text ads that run alongside search results), which also operated an ad network, *AdSense*, and *DoubleClick*, the leading provider of ad server software for “display” advertising (graphical ads). An ad server is a piece of software that chooses which adverts to display when somebody looks at a webpage. Ad networks are intermediaries selling adverts, which bring together large numbers of publishers and advertisers, with wide differentiation in product offering. The principal rationale for the merger was to integrate *DoubleClick* with *AdSense* in order to improve the ad network’s quality, in particular in order to allow it to compete in selling rich media adverts. Indeed, previously *AdSense* had primarily only sold text ads. Some big advertisers and publishers use their own ad servers (for instance prior to the merger Google used its own software for *AdSense*). However, *DoubleClick* provided around 50% of third party ad servers used by advertisers and publishers for display adverts in EEA. The Commission dismissed concerns that Google could leverage its dominance in search advertising in the markets served by the target company, *DoubleClick*, which was a provider of ad serving, management and reporting technology worldwide to website publishers, advertisers and advertising agencies²³⁷³.

The main issue raised concerned the possible foreclosure effects of the merger to the extent that Ad serving tools constitute inputs into the delivery of ads and reporting services for publishers/advertisers. By acquiring *DoubleClick*, Google could therefore get control of the leading supplier of key input for competitors to its ad network *AdSense*. Two foreclosure scenarios were examined (based on *DoubleClick*’s position in ad serving, and Google’s position in search advertising/online ad intermediation). First, Google could exploit *DoubleClick*’s position in ad serving software to foreclose rivals to *AdSense*, for instance, by raising price of ad serving tools to competing networks, requiring customers for DC’s ad-serve product to use *AdSense* (bundling), or tweaking algorithms in DC’s ad-serve product to divert business to *AdSense*. Second, Google could exploit its own position in ad intermediation to foreclose *DoubleClick*’s rivals in ad servers, for instance by bundling online advertising space with *DoubleClick*’s ad serving technology.

In examining foreclosure, the Commission explored the incentive and ability of the new entity to foreclose. With regard to the foreclosure of rival ad networks by exploiting *DoubleClick*’s leading position, the Commission found no such ability as *DoubleClick* has “no significant market power”, switching costs were “manageable”, the cost of ad serving represented only 2-5% of online advertising costs/revenues for advertisers/ publishers and the network effects were not strong enough to induce tipping. The new entity would also not have any incentive to foreclose. Surely, rivals claimed margins from intermediation were significantly higher than margins from selling ad serving tools, hence the incentive to shift customers to *AdSense* through bundling, however bundling would not pay off because of the ease of switching. *DoubleClick* represented a “key input into distribution channels that compete with Google’s *AdSense*”. However, the combination of users’ databases was thought unlikely to provide “a considerable additional competitive

2373 Google/ *DoubleClick* (Case COMP/ M.4731) Commission Decision C(2008) 927 final (11 March 2008).

advantage". The merger also raised a portability issue as advertisers had to transfer "past" data from one system to another. It was, however, estimated that less than 1% of former customers would require the migration of historical delivery data upon switching.

With regard to the foreclosure of DoubleClick's ad server rivals by exploiting Google's "strong market position" (50-80% of search ad segment), the Commission found that the ability was unclear and was limited by a number of practical factors and that the new entity would have no incentives to foreclose as the margins on ad serving tools were low compared to the margins on Google's sales of search ads, so even small volume losses in advertising would outweigh gains from customers taking up ad serving tools. Consequently, the Commission found no damage to competition as "financially strong, vertically integrated competitors would not be foreclosed".

Although the Commission accepted that "it is not excluded that (...) the merged entity would be able to combine DoubleClick's and Google's data collections, e.g., users' IP addresses, cookies IDs, connection times to correctly match records from both databases" and that "(s)uch combination could result in individual users' search histories being linked to the same users' past surfing behaviour on the internet", therefore leading "the merged entity may know that the same user has searched for terms A, B and C and visited pages X, Y and Z in the past week", and that "(s)uch information could potentially be used to better target ads to users"²³⁷⁴, it did not take into account the strategic importance of the data collected by Double/Click, which contained information about a rich sub-set of the web-browsing behaviour of Double/Click users across all publishers' websites engaged in targeted advertising, and found no harm to competition in the fact that such aggregation of data could facilitate online price discrimination on the basis of such targeted advertising. The Commission accepted DoubleClick's justification that it collected behavioural data from its users only for legitimate purposes, such as improving the overall experience offered to advertisers, and the fact that these were aggregate data that could have been of limited use because of the confidentiality clauses included in the contractual arrangements with both advertisers and publishers and the possibility of DoubleClick's customers to switch to alternative ad serving providers in case DoubleClick violated the confidentiality provisions.²³⁷⁵

Foreclosure was also the main theory of harm in The European Commission's "shopping" case against Google²³⁷⁶. In a nutshell, the Commission found that by demoting shopping comparison sites in the rankings from its general search algorithm while giving special prominence to its own shopping services Google abused its dominant position in general search to unlawfully favour its own "vertical" shopping business. An interesting, if underplayed, aspect of the case is that the decision depends crucially on the finding that there are separate markets for general search and for shopping comparison services. Given that significant information on products and prices can be obtained by using gen-

²³⁷⁴ Ibid., para 360.

²³⁷⁵ Ibid., para. 277.

²³⁷⁶ Case AT.39740 — Google Search (Shopping) (2017).

eral search, the validity of this distinction eventually rests on the “value added” provided by dedicated price comparison sites. This provides some insight as to where the frontier between foreclosure of rival “vertical” sites and legitimate product design decisions for Google’s general search might lie.

The acquisition of WhatsApp by Facebook also provides an interesting example of this focus on anti- competitive foreclosure, and the difficulties of the current tests to take sufficiently into account data concentration²³⁷⁷. Facebook provides targeted online advertising services based on analysis of data collected from Facebook users. The Commission found that WhatsApp is offered only on smartphones²³⁷⁸, but not on tablets or PCs; and in any case it does not collect data valuable for advertising purposes. Facebook was also found to offer a richer experience compared to WhatsApp, which offers a ‘more personal and targeted’ one²³⁷⁹. Following the acquisition, Facebook could have strengthened its position in the market for social networking services by adding users and/ or additional functionalities. However, the Commission noted that the ‘consumer communications sector is a recent and fast- growing sector which is characterised by frequent market entry and short innovation cycles in which large market shares may turn out to be ephemeral’ and thus ‘in such a dynamic context’, ‘high market shares are not necessarily indicative of market power and, therefore, of lasting damage to competition’²³⁸⁰. The possible effects of this reinforcement of Facebook’s market position was mitigated by the fact that around 70– 90 per cent of ‘WhatsApp users were Facebook users and were therefore already within the reach of Facebook Messenger’, and that 60– 70 per cent of Facebook Messenger active users already used WhatsApp²³⁸¹. Although it was possible for Facebook to collect data from WhatsApp users (which are also Facebook users) and gain an advantage for targeted advertising, the Commission found that this would not raise competition concerns as there remained a sufficient number of alternative providers of online advertising services with access to user data valuable for advertising purposes. The Commission found that ‘there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook’s exclusive control’²³⁸². Indeed, ‘there are currently a significant number of market participants that collect user data alongside Facebook’, thus mitigating any exclusionary concerns²³⁸³.

The Commission also focused on exclusionary/ anti- competitive foreclosure concerns in the acquisition of LinkedIn by Microsoft²³⁸⁴. Microsoft provides software solutions

2377 Facebook/ WhatsApp (Case COMP/ M.7217) Commission Decision (3 October 2014), available at [http:// ec.europa.eu/ competition/ mergers/ cases/ decisions/ m7217_ 20141003_ 20310_ 3962132_ EN.pdf](http://ec.europa.eu/competition/mergers/cases/decisions/m7217_20141003_20310_3962132_EN.pdf) .

2378 Ibid, para 21.

2379 Ibid., para. 56.

2380 Sector which is characterised by frequent market entry and short innovation cycles in which large market shares may turn out to be ephemeral’ and thus ‘in such a dynamic context’, ‘high market shares are not necessarily indicative of market power and, therefore, of lasting damage to competition’.

2381 Ibid., para. 140.

2382 Ibid, para 189.

2383 Ibid., para. 188.

2384 Microsoft/ LinkedIn (Case COMP/ M.8124) Commission Decision (6 December 2016), available at [http:// ec.europa.eu/](http://ec.europa.eu/)

for customer relationship management, while LinkedIn offers a multi- sided platform, which enables users 'to connect, share, discover and communicate with each other across multiple devices and means'²³⁸⁵. The merger raised the concerns that the new entity will integrate into Microsoft Office LinkedIn's Sales Navigator, which has access to a database of around 430 million users and which could, therefore, become an 'important input' or 'must have' for the choice of enterprise communications services providers²³⁸⁶. This combination of LinkedIn's and Microsoft's user databases could have provided, to the extent allowed by contract and applicable privacy laws, Microsoft the possibility to exclude bits competitors in the customer relationship management market, by denying them access to the LinkedIn user database (an input foreclosure strategy), thus preventing them from developing advanced customer relationship management functionalities also through machine learning and predictive analytics²³⁸⁷. However, the Commission considered that even if LinkedIn data could become an input for third- party software providers, the transaction would not give rise to competition concerns because LinkedIn did not 'appear to have a significant degree of market power [. . .] in any potential relevant upstream market'²³⁸⁸ and because 'by reducing access to LinkedIn full data, [the merged entity] is unlikely to negatively affect the overall availability of data'²³⁸⁹ to the extent that LinkedIn data was 'unlikely to be essential'²³⁹⁰. Indeed, there were a number of alternatives sources of data available that were specialized in 'social networking services' (including 'vertical social networks'), such as Xing, Viadeo, GoldenLine, Academia, Behance, and Doximity²³⁹¹.

Of particular interest is the situation in Brazil. Within the merger review mandate, CADE may impose structural or behavioural remedies on transactions in the digital economy in order to address competitive concerns. It is interesting to notice that the vast majority of the mergers in the digital economy in the period were unconditionally cleared by CADE (following the general trend of approvals in other sectors as well). The authority has recognized in some opportunities that the risks of adopting a restrictive policy regarding mergers and acquisitions might discourage innovation, as some companies are launched with the future prospect of being bought by larger and more established players. In contrast, the Merger Guidelines also allow for an analysis based on the acquisition of a *maverick* (disruptive rivals), which could increase the concern with the merger as strategy to eliminate competitive pressure.²³⁹²

It seems that the Authority is taking a cautious approach in very dynamic and innovative markets, both in mergers and in antitrust investigations. It is worth noticing that, even

competition/ mergers/ cases/ decisions/ m8124_1349_5.pdf .

2385 Ibid., para. 87.

2386 Ibid., para. 400.

2387 Ibid, paras 370-371.

2388 Ibid, para 254.

2389 Ibid., para 373.

2390 Ibid, para 276

2391 Ibid, para 90.

2392 Idem p. 50-51.

though CADE has generally adopted a cautious approach to digital market, the Authority has imposed some relevant commitments or signed merger control agreements. An interesting example in this vein is the acquisition of Time Warner by AT&T. CADE approved the transaction with the execution of an Agreement for Concentration Control (i.e. negotiated remedies).²³⁹³ In Brazil, the acquisition basically resulted in a vertical relation between content and channel licensing activities of the Time Warner Group (programmer) and satellite pay-TV supplied by Sky Brasil (packaging and distribution), company controlled by AT&T. Time Warner was found to have high market power in the relevant markets of content and channel programming and licensing in Brazil. In Brazil, TW also offered digital video services through several platforms such as TV Everywhere, and others. In the pay-TV market for distribution, there is high market concentration, with Sky and its competitor Claro/NET as clear leaders.

The vertical integration could result in alignment of incentives that would harm competitors in both markets by means of exchange of sensitive information and more favourable negotiation conditions (i.e. discriminatory practices). CADE's main concerns were the incentives and capacity of Sky to discriminate other programmers that were rivals to Time Warner. Moreover, CADE considered there was the possibility of market foreclosure in the pay-TV market through licensing of Time Warner's content to Sky in favourable terms, harming Sky's rivals at the distribution level.

The Agreement executed with CADE established obligations of isonomic treatment in the markets of pay-TV programming and distribution. AT&T should keep Sky Brasil and Time Warner programmers as separate legal entities, with their own governance and administration structures. The exchange of sensitive information or information that could potentially result in discrimination was forbidden. AT&T must ensure that Time Warner's content offers to packaging and pay-TV distribution companies will be done on a non-discriminatory basis. Sky Brasil should not impose discriminatory conditions to distribute channels of programmers not related to AT&T/TW. In an innovative move, the parties accepted to be subject to a binding arbitration in case of disputes regarding discriminatory treatment.

One of the four cases blocked by CADE in the period had an important digital component. The attempted merger between Kroton and Estacio involved the two leading private education providers in Brazil.²³⁹⁴ The digital aspect of the merger was related to concentration in the distance-based education market. Although concentration in the on-site education market provided the main rationale for the blocking decision, the level of concentration in online provision of educational services played a key role in the reasoning, as well as in some other CADE precedents cleared with restrictions.

Theories of harm have not been clearly stated in the relevant caselaw in China. In *Wal-Mart*²³⁹⁵ seems to indicate that the concentration may produce non-coordinated effects

2393 Vote of Commissioner Gilvandro Vasconcelos on Proceedings 08700.001390/2017-14.

2394 AC 08700.006185/2016-56.

2395 Wal-Mart/Niu Hai [2016] Ministry of Commerce, available at <http://www.mofcom.gov.cn/article/b/c/201208/20120808284418.shtml>.

while there is no clear mention of such terminology in the original decision. In this case, the Ministry of Commerce (MOFCOM) issued in 2012 a conditional approval of the concentration, and in 2016 it issued an announcement to lift the additional restrictive conditions in the 2012 decision. In the 2012 decision, the MOFCOM noted that Wal-Mart could leverage its advantage in distribution, logistics and service network established in China's physical retail market to the E-retail business market where Yihaodian was active. This would substantially enhance the ability of the merged entity to compete in the E-retail market which raised a unilateral effects concern.

Vertical foreclosure theories were also central in the *Bayer/Monsanto* decision. Both Bayer and Monsanto were found to be vertically integrated agricultural companies present in the entire value chain of supply of agricultural inputs like crop protection, seeds and traits, digital farming solutions. Digital farming an agronomic decision-making tool for farmers based on data and advanced analytics that enables farmers to make more efficient agronomic decisions and optimise the usage of seeds, crop protection products and fertiliser, ultimately leading to a reduced use of these inputs.

The two companies have their own Information Technology (IT) platforms for the potentially lucrative data-driven smart agriculture market. Both the parties have also acquired various entities in the past focused on developing digital farming applications. Thus, the proposed combination of Bayer and Monsanto is expected to create one of the largest vertically integrated player in the agricultural market globally.

Although, at that point only Monsanto was offering IT solutions in India, Bayer was planning to offer its digital farming applications in India in future. The combined entity would be in a position to tweak its global digital applications to suit Indian conditions. Also, the parties have access to existing agro-climatic data which they would consolidate post combination and increase entry barriers for existing market participants as such data would be critical for any market participant to effectively compete with the Combined Entity.

The CCI noted that the vertical integration and access to data would enable the combined entity to offer packaged solutions to the farmers in the seed and traits value chain and the agrochemical supply chain through their digital applications that other players may not be able to, thereby increasing its market power. The Combined Entity would have the ability and incentive to foreclose other competitors. The CCI also noted that the Parties are active in closely related markets which could result in portfolio effects in the form of exclusion of competitors.

Thus the CCI was of the view that Combination was likely to have an AAEC in various markets and suggested several modifications.

Therefore, due to the Commission's insistence, Bayer had to undertake for grant of access to Indian agro-climatic data (soil, climate, environmental, weather, moisture data, growing degree day and temperature data) used for their Digital Farming Product(s) or Digital Farming Platform(s), on fair, reasonable, and non-discriminatory terms and through non-exclusive, non-transferrable, non-sublicensable, royalty bearing licenses

Bayer also had to undertake to connect to its digital platforms selling agriculture inputs to agricultural producers in India to potential Licensees.²³⁹⁶ Bayer also had to undertake to grant access to Indian agro-climatic data collected by its digital platform, to government institutions free of charge.²³⁹⁷

9.4.2.4. Conglomerate theories of harm: big data and diversity of data as an important barrier to entry reinforcing concentration

Mergers between undertakings controlling a high variety of data may aim to combine through their transaction a unique dataset that could provide the new entity a significant and durable competitive advantage that rivals won't be able to match, with the result that the merger will establish important barriers to entry/or expansion that would keep concentration high for the foreseeable future. The core of these concerns result from mergers in a conglomerate context.

In *Microsoft/Yahoo Search!*²³⁹⁸, the Commission considered that in a conglomerate context, the proposed transaction may increase Microsoft's ability to leverage its market power in areas other than online advertising (for example client PC operating systems and personal productivity applications) when negotiating distribution agreements for its search technology (for example by bundling products) which may ultimately affect users, however, it concluded that 'future harm appears to be unlikely to be significant'.

²³⁹⁹

In *Microsoft Skype*²⁴⁰⁰ similar conglomerate effects were identified due to Microsoft's dominant position in the market for Windows operating systems, the Internet Explorer browser and Office apps software. The conglomerate concerns identified were mainly three²⁴⁰¹:

- a) Microsoft could, post-transaction, differentiate Skype's user experience according to the platforms or the OS by degrading the interoperability of Skype with competing OS and platforms in order to favour user experience on its own OS or platform and consequently increase its market power in these markets. Microsoft could also differentiate its Windows' user experience vis-à-vis Skype's and WLM's competitors by degrading the interoperability of Windows with competing providers of consumer communications services in order to favour Skype and WLM and consequently increase their market powers in these markets.
- b) Microsoft could decide to integrate Skype and Windows or Skype and Office in order to increase Skype's footprint in the consumer communications market and make it a «must-have» product, creating or reinforcing its dominant position (i.e. tying).

²³⁹⁶ Para 200, *ibid*

²³⁹⁷ Para 201, *ibid*

²³⁹⁸ Case M.5727 *Microsoft/Yahoo Search!* (2010).

²³⁹⁹ *Ibid.*, paras 243-244.

²⁴⁰⁰ Case M.6281 *Microsoft/Skype* (2011).

²⁴⁰¹ *Ibid.*, paras 134-138.

c) Microsoft could also decide for the same reasons explained in the above paragraph to commercially bundle Skype with Windows or Office (i.e. commercial bundling).

Even though the Commission found that Microsoft had the ability to enter into these three foreclosure practices²⁴⁰², it concluded that Microsoft had no incentives to engage in any of the three foreclosure strategies.²⁴⁰³

On appeal²⁴⁰⁴ to the General Court by one of the complainants, the applicant argued that the Commission failed to take account of the conglomerate effects resulting from the concentration. The General Court noted that ‘the conglomerate effects theory advanced by [the applicant] during the administrative procedure is complex and abstract, whereas concentrations giving rise to conglomerates do not usually generate competition concerns’.²⁴⁰⁵ It concluded that ‘the foreclosure effect feared by the applicants therefore depends on a series of factors in relation to which it is not certain that they might all occur in a sufficiently near future, such as is necessary in order for the prospective analysis of the effects of the concentration not to become purely speculative’ and that ‘the market foreclosure effects of which the applicants complain are too uncertain to be considered a direct and immediate effect of the concentration’.²⁴⁰⁶

The recent *Apple/Shazam* merger involved two companies providing complementary services (software solutions platforms and digital music streaming services for Apple and music recognition apps for Shazam)²⁴⁰⁷. The merger was initially notified in Austria for regulatory clearance, as the transaction did not meet the turnover thresholds of the EU Merger Regulation. However, Austria submitted a referral request to the Commission pursuant to Article 22(1) of the EUMR. The Commission cleared the merger. The Commission found that the acquisition of Shazam did not provide a significant ‘data advantage’ to Apple, employing in this assessment four metrics, including the variety of data. With regard to the variety of data, the Commission acknowledged that both providers of digital music streaming apps and music recognition services collect similar type of device data (for example, device language, operating system), demographic data (for example, name, gender, age), and behavioural data (for example, user’s clicks in app) on their users and that therefore Shazam’s data could not receive a high variety score, the same type of data being available from other sources²⁴⁰⁸. Hence, for the purposes of providing recommendations and personalised suggestions to users based on their tastes, ‘several datasets are currently used in the market, in particular drawing on their own user consumption data (that is data on the music that users stream) as well as discovery data (that is data collected through various market intelligence sources on

2402 Ibid., para. 143.

2403 Ibid., para 158.

2404 Case T79/12, *Cisco Systems Inc. and Messagenet SpA v Commission* ECLI:EU:T:2013:635

2405 Ibid., para.112.

2406 Ibid., paras 121-122.

2407 Ibid.

2408 Case M. 8788, *Apple/ Shazam* (2018), paras 318-319..

popularity of certain music tracks and future music trends)²⁴⁰⁹. For example, the Commission noted that ‘Spotify compiles a database of music discovery data, albeit based on different sources than music tag activity, and it has been very successful in providing personalized experience to their user through recommendations without the use of Shazam data’²⁴¹⁰. In contrast, Shazam ‘collects only music discovery data based on one possible (even if arguably important) source that is music tag activity’ and hence seems ‘to be one of the several data points that allow market players (artists, recorded music companies, digital music services) to understand which songs are trending in a given area’²⁴¹¹.

9.4.2.5. Other vertical/conglomerate theories of harm: panopticon power

Again in *Apple/Shazam*, the Commission found that while both Apple and Shazam are licensing music data, and both provide some online advertising services, these activities are not their core business, and thus the horizontal overlaps of the merger were limited. Any overlap between Apple’s and Shazam’s activities would arise only in a hypothetical overall market encompassing both the music charts data licensed by Shazam and the music charts compiled by Apple. These were different kinds of data, as Shazam offers music discovery charts, while Apple mainly music consumption charts. Also according to the Commission, even if post- merger Apple were to use some of its user data to strengthen Shazam’s position in the market/ segment for online advertising for music enthusiasts, this would not significantly impede effective competition, as major companies offer online advertising services on inventories far larger than Shazam, including Google and Facebook²⁴¹².

The main competition concerns raised by the merger were non- horizontal. In particular, the Commission focused a significant part of its assessment on the conglomerate non- coordinated effects of the merger resulting out of the combination of the data of Apple and Shazam. The Commission put forward a new theory of harm than input foreclosure or more generally vertical anti- competitive foreclosure effects, as it had done in previous data mergers, focusing instead on the fact that the new entity would gain access to commercially sensitive information regarding the upstream or downstream activities of its rivals. Indeed, a company may obtain critical information by becoming the supplier of a downstream competitor, this allowing it to price less aggressively in the downstream market to the detriment of consumers and to put competitors at a competitive disadvantage, thereby dissuading them to enter or expand in the market²⁴¹³. According to the Commission,

“[s]uch possible theory of harm differs from the vertical non- coordinated effects discussed in paragraphs 29 to 77 of the Non- Horizontal Merger Guidelines in so

²⁴⁰⁹ Ibid., paras 318-320.

²⁴¹⁰ Ibid., para. 320.

²⁴¹¹ Ibid., para. 321.

²⁴¹² Ibid., para 184.

²⁴¹³ Ibid, para 200.

far as it does not require the merged entity to directly foreclose access of its actual or potential rivals to supplies (input foreclosure) or markets (customer foreclosure). The qualifying element of the potentially anti- competitive conduct is in fact linked to the intelligence underlying that conduct, that is commercially sensitive information on the merged entity's rivals acquired through the vertical integration brought about by the merger. However, the conduct must also be liable to negatively affect competition, for instance because the merged entity can price less aggressively to the detriment of consumers or because it can put competitors at a competitive disadvantage²⁴¹⁴.

The Commission therefore examined the access of the new entity to commercially sensitive information, in particular in view of the fact that Shazam currently collects certain data on users of third- party apps, and in particular digital music streaming apps, installed on the same smart mobile devices where the Shazam app is installed (for both Android and iOS devices) and allows those of its users who are also users of Spotify to connect their Shazam account (anonymous or registered) to their Spotify account (free- premium or premium). Shazam could therefore gain access to some additional pieces of information on Spotify users, in particular Spotify premium users. This data enables the Shazam app to identify its users, for example, the email address or Facebook identifier for registered Shazam users and the advertising identifier for anonymous Shazam users²⁴¹⁵. It was in this context that the Commission assessed 'whether, through the acquisition of control over the Shazam app and Shazam's database, Apple could gain access to certain data on its competitors, and in particular on Spotify, in the markets for digital music streaming apps [. . .] and whether this could lead to any non- horizontal non- coordinated anti- competitive effects'²⁴¹⁶.

In assessing the possible anti- competitive effect, the Commission examined²⁴¹⁷:

- whether the information to which Apple would gain access as result of the merger is commercially sensitive information,
- the competitive disadvantage that Apple Music's competitors could suffer as a result of Apple potentially making use of that information,
- whether Apple would have the ability and incentives to use the commercially sensitive information acquired, and
- what overall impact such a strategy would have on effective competition.

With regard to the first issue, the Commission noted that '[w] hilst the Non- Horizontal Merger Guidelines do not provide a definition of "commercially sensitive information" [. . .] customer lists are indicated as constituting business secrets of an undertaking, together with quantities produced and sold, cost and price structure and sales strategy,

2414 Ibid., para 193.

2415 Ibid., para 199.

2416 Ibid., para 200.

2417 Ibid., para 209.

that is information whose disclosure could result in a serious harm to an undertaking²⁴¹⁸.

With regard to the second issue, the Commission accepted that ‘it is not sufficient to demonstrate that, through a merger, the merged entity would gain access to commercially sensitive information on its rivals, but that it is also necessary to show that access to that information could have a negative impact on competition’²⁴¹⁹. In assessing this element, the Commission took into account ‘certain legal and/ or contractual limitations on the use of this customer information’ by Apple post- merger, such as the GDPR²⁴²⁰ and the e-Privacy Directive²⁴²¹, which may affect the transmission of the customer information and its subsequent use. However, the Commission noted that the e- Privacy Directive does not prevent any technical storage or access for the sole purpose of carrying out the transmission of a communication over an electronic communications network, thus enabling Apple to lawfully store or have access to this customer information. Possible contractual limitations to the use of this data could emanate from the Android Developer Guidelines, which so far had provided Shazam access to data about which apps are installed on a user’s Android device, or by rivals to the new entity, such as Spotify, which, according to their developer terms and conditions of service, may restrict the use of Spotify’s user data by app developers and enforce it if, post- merger, Apple would aim to collect data for services that compete with those provided by Spotify²⁴²². Notwithstanding these limitations, the Commission found that the new entity could collect this customer information lawfully and proceeded to the analysis of the incentive and ability of the new entity to use this customer information to put competitors at a competitive disadvantage²⁴²³.

With regard to the third issue, the Commission found that it was unclear whether the merged entity would have the incentive to use the customer information for targeted advertising in order to put Apple Music’s competitors at a competitive disadvantage²⁴²⁴.

The final step in the analysis was the assessment of the impact on competition. The Commission did not find that this would be significant. Although it noted that ‘Shazam’s installed base allows it to gather the Customer App Information for a very high number of (music enthusiast) users’, it also found that ‘the same would be true for Facebook and Twitter, for example, which also collect information on their users’ interest’²⁴²⁵. Hence, the ‘data increment’ brought by the merger with Shazam would be unlikely to provide a

2418 Ibid, para 216. The Commission arrived at this definition by referring to the Commission Notice on the rules for access to the Commission file [2005] OJ C 325/ 7.

2419 Apple/ Shazam (Case M.8788) Commission Decision (11 November 2018), para 219.

2420 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation ‘GDPR’) (OJ L 119, 4.5.2016, p. 1).

2421 Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector («Directive on privacy and electronic communications» or «e-Privacy Directive») OJ L 201, 31.7.2002, p.37-47

2422 Ibid, para 237.

2423 Ibid, para 238.

2424 Ibid, para 244.

2425 Ibid., para 247.

significant competitive advantage to Apple²⁴²⁶. The Commission's decision is remarkable in that it adds to the concerns raised by the possible exclusionary practices leveraging the merged entity's market position to adjacent markets through various strategies of input or customer foreclosure, the effects of possible conducts related to access to commercially sensitive information as a possible (independent) theory of harm.

Of particular interest is also the analysis by the Commission of the increased technical capabilities of the new entity, as a possible competition concern, although this might improve existing functionalities, or offer additional functionalities, on digital music streaming apps²⁴²⁷. In assessing these input foreclosure concerns, the Commission proceeded to analyse the *variety* of data to which the new entity would have access, noting that competitors collect similar types of data, and therefore access to valuable types of data will not be blocked as a result of the merger²⁴²⁸. Similarly, with regard to the *velocity* of the data (measured, for instance, by the average time spent by users each month on the app), the Commission found that Shazam collected users' data at lower speed compared to providers of music streaming apps²⁴²⁹. Competitors have access to a significantly higher *volume* of data than Shazam²⁴³⁰, and with regard to the *value* of this data, it was found that it did not represent 'a key asset and is not unique'²⁴³¹.

9.4.2.6. Innovation theories of harm

Competition authorities have been recently focusing on the possible effects of merger activity on innovation. The US DOJ & FTC Horizontal Merger Guidelines of 2010 were the first to include a specific Section on competition harm to innovation and product variety and explicitly considering that "(a) merger enhances market power if it is likely to encourage one or more firms to raise price, reduce output, *diminish innovation*, or otherwise harm customers as a result of diminished competitive constraints or incentives"²⁴³². In analyzing effects on innovation, the US competition authorities have often taken an "innovation market" perspective²⁴³³, or as this has been reframed in the 2017 update of the US DOJ & FTC Antitrust Guidelines for the Licensing of Intellectual Property, "research and development markets"²⁴³⁴. The US authorities have employed "innovation markets" or "research and development markets" concepts in order to assess competition effects in a number of cases²⁴³⁵. According to this approach, the US Agencies will delineate

2426 Ibid, para 258.

2427 Ibid, para 313.

2428 Ibid., paras 318-321.

2429 Ibid. para 322.

2430 Ibid, para 323.

2431 Ibid., para 324.

2432 USDOJ & FTC, Horizontal Merger Guidelines (2010), p. 2. Emphasis added.

2433 RJ Gilbert and SC Sunshine, 'Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets' [1995] 63 Antitrust Law Journal 569.

2434 US DOJ & FTC Antitrust Guidelines for the Licensing of Intellectual Property, Section 3.2.3. (2017)

2435 The FTC has identified and referred to research and development markets in the following matters: Complaint, Amgen Inc., 134 F.T.C. 333, 337-39 (2002) (identifying a research and development market for inhibitors of cytokines that promote the inflammation of human tissue); Wright Med. Tech., Inc., Proposed Consent Agreement with Analysis to Aid

research and development markets, only when the capabilities to engage in relevant research and development can be associated with specialized assets or characteristics of specific firms”, the authorities seeking to identify three key effects: (i) the ability of the merged firm to reduce total market investments in R&D, (ii) the incentive of the merged entity to reduce the innovative effort and (iii) the impact of the merger on the efficiency of the R&D expenditure²⁴³⁶. This looks like a relatively demanding framework from an evidential perspective. In most recent cases, the US authorities seem to adopt a broader framework and have also challenged mergers for diminishing innovation even if the merger would eliminate potential competition from a relative small competitor, in particular when the smaller player has promising pipeline products. The theory of harm in these cases was the ‘actual potential entrant’ theory, a potential entrant merging with an existing competitor and thus leading to lessen future competition.

In the European Commission’s Horizontal Merger Guidelines, one of the effects to be analysed under merger control, is the ‘effect on innovation’²⁴³⁷. The innovation potential of the merging firms, in particular if “one or more merging parties are important innovators in ways not reflected in market shares”, is taken into account, irrespective of the levels of concentration that are usually considered by the Commission’s Horizontal Guidelines as raising competition concerns²⁴³⁸. Similarly, the EU non-horizontal merger guidelines list the diminishing of innovation as a competition concern for vertical and conglomerate mergers²⁴³⁹ and also state that mergers involving innovative companies that are likely to expand significantly in the near future will be extensively investigated even when the post-merger market share is below 30%²⁴⁴⁰. In a relatively recent Competition Policy Brief, the European Commission explains that harm to innovation may justify the Commission to consider that a merger between a firm present in the relevant market with a firm that is not actually present in the relevant market could lead to a significant impediment of effective competition²⁴⁴¹.

The Commission has actively considered innovation effects in a series of recent merger cases, either exploring the possibility that a horizontal merger will lead to a loss of innovation by eliminating pipeline products that would likely have entered existing markets or that would have created entirely new value chains, thus preventing consumers from increased choice and variety²⁴⁴², as well as non-horizontal vertical or conglomerate

Public Comment, 60 Fed. Reg. 460, 463 (Jan. 4, 1995) (identifying a research and development market for orthopedic implants for use in human hands); *Am. Home Prods. Corp., Proposed Consent Agreement with Analysis to Aid Public Comment*, 59 Fed. Reg. 60,807, 60,815 (Nov. 28, 1994) (identifying a research and development market for, among other things, rotavirus vaccines).

2436 E. Cefis et al, *The Role of Innovation in Merger Policy: Europe’s Efficiency Defence versus America’s Innovation Markets Approach*, Tjalling C. Koopmans Institute, Discussion paper series 07-21.

2437 EU Horizontal Merger Guidelines [2004] OJ C31/5, para 8 & 38 (hereinafter EU HMG).

2438 *Ibid.*, para. 20.

2439 EU Non Horizontal Merger Guidelines [2008] OJ C 265/7, para. 10.

2440 *Ibid.*, para. 26.

2441 European Commission, *Competition Policy Brief*, 2016-01, p. 3.

2442 COMP/M. 5675 – Syngenta/Monsanto’s Sunflower Seed Business, Commission decision of 17 November 2010, para. 248 and paras 200 and 207 (finding that farmers would have suffered from reduced choice); COMP/ M.6166 – Deutsche

mergers that would have harmed the ability of the merged entity's rivals to innovate²⁴⁴³. It has been alleged that in several of these cases the Commission has proceeded to establish a novel theory of harm, that of a significant impediment to industry innovation (SIII), as it has not explored the existence of specific innovation markets that could have been affected by the merger, the Commission relying, in order to find the SIII, on several negative views about the merger gathered from third parties, without assessing if the merger would lead to a reduction in the R&D spend/innovation incentives of the merged entity, its rivals and/or the whole industry²⁴⁴⁴. According to this view, the Commission's SIII theory is based on a presumption that regulatory intervention is warranted when a merger removes a "parallel path R&D", this being not in line with the standard of proof in EU merger control²⁴⁴⁵.

These criticisms are far-fetched as, first, it is quite difficult to explain why the competition authority should not assess, when examining the merger, what would be the merger's effects on innovation incentives in the industry. This can be done, without necessarily defining a specific "innovation market". Indeed, in the context of the Transfer of Technology Guidelines, the Commission has put in place a filter that confines detailed analysis to cases "that are likely to present real competition concerns", not based on market shares but on the existence of "at least four independent technologies that may constitute a commercially viable alternative, in addition to the licensed technology controlled by the parties to the agreement"²⁴⁴⁶. According to the Commission, '(i)n assessing whether the technologies are sufficiently substitutable the relative commercial strength of the technologies in question must be taken into account. The competitive constraint imposed by a technology is limited if it does not constitute a commercially viable alternative to the licensed technology'²⁴⁴⁷. Even if an agreement falls outside the safe harbour this does not create a presumption of incompatibility with Article 101 TFEU but simply leads to an individual assessment under the guidelines and Article 101(3) TFEU, the Commission's approach indicates that the main concern is the existence of sufficient choice in terms of independent technologies available in the market, thus showing that showing the emphasis put on the existence of various "independent" R&D paths or, more generally, technologies. Limiting the focus on innovation to just the adoption of the "innovation

Börse/NYSE Euronext, Commission decision of 1 February 2012, section 11.2.1.3.4, confirmed by Case T-175/12, *Deutsche Börse AG v Commission*, ECLI:EU:T:2015:148; Case No COMP/ M.7326, *Medtronic/Covidien*, Commission decision of 28 November 2014; Case No COMP/M.7275, *Novartis/GlaxoSmithKline's oncology business*, Commission decision of 28 January 2015 ; Case No COMP/ M.7559, *Pfizer/Hospira*, Commission decision of 4 August 2015 Case No COMP/ M.7278, *General Electric/Alstom (Thermal Power- Renewable Power & Grid Business)*, Commission decision of 8 September 2015

2443 Case COMP/ M.5984 – *Intel/McAfee*, Commission decision of 26 January 2011 ; Case COMP/ M.6564 – *ARM/GIESECKE & DEVRIENT/GEMALTO JV*, Commission decision of 6 November 2012; Case No COMP/M.7688 – *Intel/Altera*, Commission decision of 14 October 2015.

2444 N. Petit, *Significant Impediment to Industry Innovation: A Novel Theory of Harm in EU Merger Control?*, ICLE White paper 2017-1, 22.

2445 *Ibid.*, p. 21.

2446 Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements [2014] OJ C 89/3, para. 157.

2447 *Ibid.*

markets” approach seems reductionist and certainly does not represent the most recent competition law thinking, also of US competition agencies²⁴⁴⁸. It is also important to take into account the patent portfolio strength of the merging parties, as well as the existence of licensing and cross-licensing agreements and internal strategy documents in order to assess the possible effects of a specific merger on innovation.

One should not limit this finding on situations of high market shares but it may be also be relevant to emphasise the need to keep an eye on technological developments and the possibility of potential competitors that rely on different technologies than the dominant undertaking, even if they are of a smaller size than the dominant undertaking, to challenge the competitive position of existing value chains and replace them with new ones. Competition law should take into this form of disruptive competition, not only in order to relativize the finding of high market shares, but also when assessing restrictions to the potential competition from these disruptors.

In its recent decision on the *Dow/Dupont* merger²⁴⁴⁹, the European Commission found that the merger may have reduced innovation competition for pesticides by looking to the ability and the incentive of the parties to innovate. The Commission focused its assessment both on innovation competition at the level of *innovation spaces* within the crop protection industry and on innovation competition at the *industry level*. The Commission followed the same pattern in the context of the *Bayer/Monsanto* merger. A similar approach may be adopted for data mergers affecting innovation. The recent Report commissioned by the Commission on Competition Policy for the Digital Era also emphasises that ‘competition authorities should inquire whether acquirer and target operate in the same ‘technological space’ or “users’ space”²⁴⁵⁰.

In reviewing *Bayer/Monsanto*, the Russian FAS concluded that the merger would hamper innovation activity in the digital solutions for agriculture market decreasing competitors’ incentives to innovate, the merger becoming a barrier to enter the market for alternative agriculture software²⁴⁵¹. According to FAS, the high intensity of innovation and the rapidly changing business models in the markets for these products require analysis, not only at the level of the various product markets affected by the merger, but also at the level of the “integrated market of agricultural technological solutions”. With regard to the effect on innovation, FAS focused on the risks for competition in the market for digital solutions in agriculture. According to the FAS, the merger raises the risk of the emergence of a closed digital platform that will dominate the market and which will eventually reduce competition by squeezing out from the market alternative digital solutions from other companies. The control over the digital platform by the merging parties could influence the decision of agricultural producers to acquire other means of production (from seeds to agrochemicals). The decrease of innovative activity in the field of digital farming could also create barriers to entry into the market for digital plat-

2448 See our analysis of the US merger cases above where innovation concerns were raised.

2449 European Commission, Case M.7932 Dow/Dupont (2017).

2450 Crémer et al., Competition Policy for the digital era (Publications Office of the European Union, 2019), 117.

2451 FAS, Order dated 20 April 2018, available at <https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/ia-28184-18>.

forms. It could also have the potential to cut down the research activity of competitors, as these will lose the incentive of competing with the industry leaders. A closed and dominant digital platform will also become an important barrier to entry for the emergence of new small innovative projects in the fields of selection or agro chemistry, which could have been integrated without difficulty into open digital platforms. The decision does not provide further details about the assessment of the incentives and of the ability of the leading digital platform to foreclose the access of smaller competitors in their platform.

According to FAS, the new entity resulting from the merger would have access to accumulated data on genetic information, and will control technologies of accelerated selection, including technologies of gene editing, which enable the accelerated selection of certain given characteristics by means of digital algorithms and big data, including historical data. The control of these technologies and the significant market share of the merging entities in the relevant product markets provide, according to the FAS, the merged entity with the power to influence the decisions of agriculture producers, raising strategic barriers to entry into these markets for other companies which do not dispose of the same access to technologies, and therefore to significantly increase its share on the full range of the relevant markets. Indeed, the creation of a digital platform integrating the supply of key agricultural inputs makes it “virtually impossible” for independent producers of agrochemicals or seeds to enter the market, as well as for individual agronomic digital services not integrated into such a platform to have access to a critical installed base of consumers. According to FAS, in markets that are heavily dependent on ongoing technological transformation and innovation competition, market power should be conceived as the projection of the innovation potential of the merging entity. The joint merged entity would become a dominant player in a number of global product markets like genomic markers for some crops, digital farming solutions and even some seeds markets as well and would get an ultimate advantage in the agritech markets as it would combine a complex technological capability of the global scale that other companies lack. The consolidation of the R&D resources of Bayer and Monsanto and of their innovative potential will enable the merged entity to “dramatically increase” its market power in the relevant commodity markets, through various exclusionary strategies. In view of the established immunity from antitrust regulation for both the exercise of IP rights in the unilateral conduct context and also with regard to anticompetitive licensing agreements, this conduct could not be dealt *ex post*, by the antitrust law provisions, therefore, according to the FAS decision, making it necessary to deal with the possible situations of abuse of this market power *ex ante* through merger control.

9.4.3. The challenges of a more dynamic assessment of mergers: Counterfactuals, standard of proof, burden of proof

The assessment as to whether a merger would give rise to a restriction of competition is based on a counterfactual analysis where the post-merger scenario is compared to

a hypothetical scenario absent the merger in question. The latter is normally taken to be the same as the situation before the merger is consummated. The counterfactual analysis may be narrow and static, or more dynamic, depending on the specific case and the data available to the competition authority. In principle, competition authorities would take into account future changes to the market that can reasonably be foreseen. A classic example is where the target company to be acquired is expected to exit the market absent the merger.²⁴⁵² The identification of the proper counterfactual can be complicated by the fact that there can be more than one merger occurring in parallel in the same relevant market, which is a quite frequent scenario in the digital economy, as we have explored above. On the basis of the identified counterfactual, the competition authority then proceeds with the definition of the relevant product and geographic market, which is a propaedeutic step to inform the subsequent competitive assessment of the merger.²⁴⁵³ The analysis of the counterfactual is therefore particularly important for determining the boundaries of the relevant market.

In the context of the fast moving, from a technology and consumer preferences, perspectives digital economy, counterfactuals should inevitably become more speculative. As a recent report commissioned by the UK CMA acknowledges, predicting the evolution of the target in the absence of the merger (counterfactual) 'is especially challenging when, as is often the case, targets are young firms at the early stage of their development'²⁴⁵⁴. Indeed, '(i)n markets as dynamic as digital markets, evolution may be the result of the target's independent decision to change its business model and/or investments made by venture capitalists and/or the decision of other entities in the industry to purchase the target and integrate it in their own operations', therefore when defining the counterfactual to a merger, it is important that competition authorities 'consider the ability of the target to develop, on its own or attracting outside resources, as well as the likelihood of an alternative buyer coming along', which is an 'inherently complex' exercise²⁴⁵⁵. The report to the UK CMA concludes that competition authorities 'would need to be willing to accept more uncertainty in their counterfactual', and to be 'somewhat imaginative'²⁴⁵⁶. However, the report also notes that such a strategy may face difficulties as to the standard of proof competition authorities may face with regard to carrying out their burden of proof regarding the harm caused by the merger and the level of judicial scrutiny to which they may be subject to. The report concludes that it 'may be necessary to test the boundaries of the legal tests and constraints' that competition authorities face, the rapid evolution of digital markets and the risk of market tipping justifying 'a more risk-taking approach'²⁴⁵⁷.

2452 Case No COMP/M.2810 Deloitte & Touche/Andersen (UK) (2002), paras 45–48.

2453 EU Horizontal Merger Guidelines [2004] OJ C31/6, para 10.

2454 Lear, Ex-post Assessment of Merger Control Decisions in Digital Markets (Final Report, May 9, 2019), available at http://www.learlab.com/wp-content/uploads/2019/06/CMA_past_digital_mergers_GOV.UK_version-1.pdf, iii.

2455 Ibid.

2456 Ibid., 46.

2457 Ibid., iv.

One may view a more flexible counterfactual test as a step towards a broader reform, if not of the substantive standard of merger control, at least of the decision procedures put in place. The Report to the CMA acknowledges that even if consumer harm cannot be precisely measured, it is possible that in the absence of clearly documented consumer welfare gains, mergers and acquisitions by digital platforms holding market power and aiming at reducing the competitive pressure they face should be forbidden on the basis of a ‘balance of harm’ approach that would take into account ‘the scale as well as the likelihood of harm in merger cases involving potential competition and harm to innovation’²⁴⁵⁸. This would weigh-up (i) the potential harm from losing a powerful rival; and (ii) the magnitude and likelihood of potential benefits to consumers (including increased quality and availability of innovative new services, heightened privacy)²⁴⁵⁹. This reform often calls for a review of the standards of judicial review so as to provide the necessary discretionary space to the competition authority for developing a more precautionary approach towards mergers in the digital economy²⁴⁶⁰, and is also eventually connected with the idea of reversing the burden of proof for some of these mergers in order to prove the efficiencies of these deals as a way to deal with the problem of ‘killer acquisitions’ affecting potential competition and against users defecting from the specific platform’s ecosystem²⁴⁶¹.

The Brazilian Competition Act provides a rebuttable presumption that any company with more than 20% of market share has a dominant position in its relevant market. Such a presumption must be assessed in light of several other factors that affect competition, such as contestability, entry barriers, and rivalry. Moreover, efficiencies may also be taken into account to clear a merger if they could not be achieved by means less harmful to competition and if there are appropriated by final consumers. The ultimate legal standard for assessing a merger is whether it “eliminates competition in a substantial part of the relevant market” or “creates or reinforces a dominant position” (art. 88, paragraph 5, of Law 12.529/11).

As a comparison, when it comes to antitrust investigations, Brazil adopts different standards of proof depending on the conduct. The wording of the Competition Act condemns any conduct that has as object or may have as effect an anticompetitive impact. Whereas in hard-core cartels cases the Brazilian competition authority adopts the per

2458 J Furman, ‘Unlocking digital competition, Report of the Digital Competition Expert Panel’ 13 March 2019 (‘Furman Report’, Recommendation Action 10, paras 3.88-3.100.

2459 Ibid.

2460 See, the recommendations made by the UK CMA following the Furman report, noting that ‘the current appeal procedures (such as the emphasis on oral testimony and the admission of new evidence at the appeal stage) should be reviewed as they are particularly damaging to the CMA’s ability to defend infringement decisions in fast-moving markets’: ‘The CMA’s response to the Digital Competition Expert Panel final report’ 22 March 2019 available at <https://www.gov.uk/government/publications/digital-competition-expert-panel-recommendations-cma-view>.

2461 See the proposals of the former chief economist of the European Commission, Tommaso Valletti and Crémer et al., *Competition Policy for the digital era* (Publications Office of the European Union, 2019), 11. For a different perspective see the Furman Report para 3.103, noting that ‘presumption against all acquisitions by large digital companies is not a proportionate response to the challenges posed by the digital economy’, preferring instead altering the standard of proof to a ‘balance of harms approach’.

se rule (although sometimes not explicitly), in unilateral conducts it adopts the rule of reason approach, balancing negative impacts and positive efficiencies in order to establish the net effect of a conduct.

The economic analysis of merger cases in Brazil involves the consideration of a counterfactual to the case under scrutiny. The counterfactual is often implicitly assumed to be the prevalent market structure and competitive pressure, which is contrasted with a formal or qualitative simulation of the merger effects.²⁴⁶² CADE also regulates the way that technical opinions should be submitted to constitute evidence.²⁴⁶³ There is no clear indication that mergers in digital markets receive a distinct treatment in these respects, by means of the projection of market counterfactuals. In short, the merger analysis, while prospective, is mostly static.

The recent Guidelines of Remedies in merger control, published in October 2018, are also helpful in assessing the design of antitrust interventions on merger control.²⁴⁶⁴ The Guidelines express a preference for structural remedies to address the competition concerns raised by a merger. When structural remedies are not available, or they are too expensive or compromise merger efficiencies, behavioural remedies may be adopted. That was the case in the acquisition of Time Warner by AT&T, in which CADE imposed only behavioural remedies. A general assessment of merger remedies in digital markets suggests that behavioural remedies are relatively more common than in other industries.

Article 28 of Chinese Anti-monopoly law provides that where the concentration may lead to elimination or restriction of competition, the concentration should be prohibited. However, if the undertaking can prove that the advantages of such concentration to competition obviously outweigh the disadvantages, or that the concentration is in the public interest, the concentration can be allowed. Despite this, there is no clear indication of how this rule of reason approach should be conducted.

9.5. Economics of digital mergers: a selection of topics

In this section, we discuss how the distinguishing features of digital technologies affect the economics of merger review and hence the validity of various theories of harm. While there is of course significant overlap with our discussion of recent cases, the emphasis is somewhat different. Not only do we focus more narrowly on “digital-specific” issues but we take a more normative approach, discussing what the theories of harm *should* be rather than what the arguments advanced by the competition authorities have been so far. We will therefore also consider potential issues and associated theories of harm which have not yet been (fully) analysed in actual cases.

2462 See Sections 4.1 and 4.2 of the Guidelines for Horizontal Mergers. According to the Guidelines, in merger effects simulation, some demand and supply parameters are estimated to try to measure what could happen in the future in relation to prices, controlling the efficiency gains derived from the transaction. p. 49-50.

2463 CADE Resolution 4 of 29 May 2012.

2464 Available at http://www.cade.gov.br/acesso-a-informacao/publicacoes-institucionais/guias_do_Cade/copy_of_GuiaRemedios.pdf http://www.cade.gov.br/acesso-a-informacao/publicacoes-institucionais/guias_do_Cade/

9.5.1. Market Definition

While market definition is not always necessary to analyse the likely economic effects of mergers, it is still an essential part of the joint legal and economic assessment of any transaction. The explosion of digital technologies complicates or modifies the often routine task of defining relevant markets in a surprising number of ways.

9.5.1.1. The Geographic Dimension

Assume that some of the products sold by the merging parties are sufficiently close substitutes to belong to the same relevant market. The geographic dimension of this market is then assessed by identifying the obstacles which might prevent a product sold in a location X to put sufficient competitive pressure on the same product sold at location Y. The most common obstacles leading to a finding of separate geographic market are substantial transportation costs, differences in language, tariffs or other regulatory barriers such as quality/compatibility standards or the local character of intellectual property protection. Of these factors, only transportation costs are unambiguously affected by digital technology. As discussed above, digital technology drastically reduces the costs of placing an order on a digital sales platform or on the site of a single seller. If the product purchased can itself be delivered digitally, then the compression of space is complete and, absent any other barrier, the geographic scope of the market for the product sold would potentially be worldwide. But what if the product itself still needs to be delivered through traditional transportation means?

Consider first a “single-sided” internet seller, e.g. a website selling only the products from one firm and not relying on digital advertising for financing. Even though the site can be reached from anywhere, the geographic scope of the market would be defined solely based on the obstacles faced for the physical delivery of the products sold. In this context, the organisation of the seller’s delivery operation provides some useful information.

Matters are more complicated for a two-sided sales platform which obtains a significant proportion of its revenues from online advertising. While the geographic dimension of the relevant markets for the goods and services sold would be defined in the same manner as for a single-sided seller, we must also define a relevant geographic market for the supply of advertising « space » which would normally include all regions from which a substantial number of customers log onto the platform. This principle applies as long as the platform is accessible only in a single language. From the purpose of defining the geographic scope of advertising markets two different linguistic versions of the same platform should essentially be seen as separate platforms²⁴⁶⁵.

2465 The only additional factor to consider is the benefit from “one stop shopping” for advertisers eager to advertise in several languages.

9.5.1.2. Individualised Pricing

Maybe the greatest challenge brought by the proliferation of digital technology and data is the emergence of new forms of pricing, which do not fit well with our traditional approach to market definition or with our traditional assessment of the likely effect of mergers on prices. Digital sellers have the ability not only to « recognise » previous buyers more effectively but also to collect, store and exploit information about this buyer's past behaviour in order to display products and prices aimed at maximising the seller's profits given the available buyer profile. Nor is the information in the seller's hands necessarily limited to her previous interactions with the seller's own sites. Not only are there tools extracting relevant information from the customer's visits to other sites but buyer-specific information can also be purchased from other sources, including other internet sellers or other internet platforms.

To understand the market definition issues raised by individualised pricing, consider internet sellers of digitalised books. How would we conceptually apply the SNIP approach? Because pricing is individualised, it would be tempting to argue that the SNIP test should first be applied at the level of each individual, i.e. that, potentially at least (the individual consumer is the market). While superficially attractive, this approach is a dead end. Suppose that we look at two different Amazon ebook customers and apply the SNIP logic individually to each of them. Consumer A is a complete Amazon devotee solely owning Amazon ebook-reading devices. Consumer B holds a number of reading devices accommodating a variety of formats and cares mostly about the price. Following the SNIP logic, B does not define a market onto itself, while A might. In a normal SSNIP exercise, one starts from the smallest possible identifiable market (in this case the individual) and progressively expand the market until the benchmark price increase is no longer profitable. But how do we apply this methodology when different consumers face different prices? One approach is to say that we cannot so that the only relevant question is whether or not a given individual would be part of a relevant market. In practice, this amounts to defining as many relevant markets as there are type A Amazon consumers. This does not make much sense. Firstly, this approach would be completely impractical when confronted with digital sellers catering to millions of consumers. Secondly, this approach essentially loses sight of what the broader logic behind the SNIP test is supposed to be.

When we think in terms of models of posted price competition it is natural to specify the market-defining experiment as an increase in the single price charged to all consumers. This « single price » actually combines two features: it is the price charged to each individual consumer and its levels reflects the degree to which the firm is constrained in its overall attempt to increase its profits. It is in fact this second feature of the uniform price that we are interested in when conducting the SSNIP thought experiment. The natural generalisation of this approach to a situation with individualised pricing is therefore not to conduct a SSNIP-like experiment on each individual price but to find a plausible way of expressing the level of market power corresponding to the firm's overall pricing strategy. In this view then, even with customised pricing, the correct thought

experiment is to imagine a 5% increase in the level of *each* of the individualised prices compared to what each individualised price would have been in a competitive market. Of course, the number of consumers lost to a price increase depends on the individual characteristics of consumers, but this is no different from the traditional uniform pricing SNIP experiment where consumers dropping out are those with lower valuations for the firm's version of the product. So, in our opinion, a slightly modified version of the SSNIP test still applies and there should be no presumption that individualised pricing lead to narrower relevant markets.

While individualised pricing should not much change our traditional view of market definition, another aspect of « customised marketing » has potentially more severe consequences : the seller or platform can choose the set of products between which the individual consumer gets to choose. The problem that this causes is more easily understood through an example. Suppose that buyers do not have a broad ex ante knowledge of the types of products available, e.g. they know that there are different types of books and know a few authors whom they like, but not much more. In this context the digital seller itself can play an important role in bringing potentially relevant books to the customer's attention.

Suppose that there are four books and two digital sellers. Assume that the first seller targets books A and B to the consumer, while the second seller targets books C and D. Do A and D, for example, belong to the same product market? The answer is not obvious. Clearly, if there were only two types of consumers, one type using only the first seller and the second using only the second, the answer would be negative. Imagine now that a portion of buyers « multi-home » in the sense that they look at the offering from both digital seller before deciding which book to purchase. If the proportion of buyers who multi-home is large enough then A and D would likely be in the same market since an increase in the price of A would lead to a significant loss of sales not only to B but also to C or D.

Let us now introduce heterogeneity in consumer tastes. Say consumer one's ranking of the books from most to least favorite is ABCD, while consumer two's own ranking is DCBA. Suppose however that these books are sufficiently close substitutes for both customers that all would belong to the same market if each consumers were made aware of all four books. However, each seller selects just a few books to suggest to each consumer. If both sellers have efficient targeting algorithms, they will both show A and B to consumer 1 and C and D to consumer two, so that, again A and D would not be in the same product market. Indeed, in this extreme example, multi-homing by consumers would still leave A and D in different markets. On the other hand, the two books are more likely to be effective substitutes if the targeting algorithms are not quite accurate. If, for example the first seller offers AB to consumer 1 but the second seller, with a poorer algorithm, offers B and D, then A and D can still be in the same market is sufficiently many type 1 consumers multi-home. Overall then, for a given amount of consumer heterogeneity, product market definition would still depend both on the extent of multi-homing and on the accuracy (or at least similarity) between the targeting

algorithms used by different sellers and the information that each seller is able to feed to its algorithm. So, how should we proceed? Should we still define markets in the usual manner, looking at products which are potentially substitutes without consideration for the impact of the marketing strategies chosen by the sellers? This would be consistent with the widespread view that, in most situations at least, markets should be defined based on the fundamental characteristics of products and of the technology used to produce them without any consideration for how firms *choose* to price or advertise these products. The importance of the marketing model prevailing in the industry would then be assessed as part of the evaluation of a given transaction but not as part and parcel of market definition. Or should we account for the lack of de facto substitution between products due to the sellers' marketing strategies as part of market definition itself?

Neither the academic world nor the Competition Authorities are currently well armed to address the challenges outlined in the example above.

9.5.2. Unilateral Horizontal Effects

9.5.2.1. Individualised Pricing and Consumer Targeting²⁴⁶⁶

We have just discussed how the type of individualised pricing enabled by digitalisation raises issues relative to market definition. Not surprisingly, individualised pricing also has implications for assessing the likely horizontal effects of a merger.

There is a large economic literature on competition with price discrimination. There is also an emerging literature on the specific type of discriminatory pricing implemented by digital sellers²⁴⁶⁷. The bottom line of the traditional literature is straightforward: by and large, allowing firms to price discriminate leads to more competitive outcomes. This should not be surprising given our previous discussion of market definition: with individualised sales, every consumer becomes a separate battle field. When doing battle for this one customer then, the firms are not hampered by the desire to keep sufficiently high margins on the sales made to other consumers, as would be the case with uniform pricing. This leads to more competitive outcomes. Just as in standard models of compe

2466 We do not discuss whether increase customising of offers achieved by only showing a subset of available products" is good or bad for consumer welfare. If it were harmful, then information sharing allowing for even more precise customising of offers might actually be undesirable.

2467 For example, see, Thisse, J-F and X. Vives, 1988, « On the Strategic Choice of Spatial Pricing Policy », *American Economic Review*, 78 :1, pp. 122 – 137. For a review of the traditional literature on discrimination in oligopoly, see Stole, L., 2007, « Price Discrimination and Competition », in *Handbook of Industrial Organization*, Vol. 3, Edited by Armstrong, M. and R.H. Porter, North Holland, Amsterdam. Recent papers on customised pricing include Chen, Z., C. Choe and N. Matsushima, 2018, « Competitive Personalized Pricing », Discussion Paper 02/18, Monash University; Choe, C., S. King and N. Matsushima, 2018, « Pricing with Cookies : Behaviour-Based Discrimination and Spatial Competition », *Management Science*, 6 :12 or Esteves, R-B. and J. Resende, 2016, « Competitive Targeted Advertising with Price Discrimination », *Marketing Science*, 35 :4. For earlier contributions, see Villas-Boas, J.M., 1999, « Dynamic Competition with Customer Recognition », *Rand Journal of Economics*, 35 :3, pp. 604 – 631 and Chen, Y. and G. Iyer, 2002, « Consumer Addressability and Customized Pricing », *Marketing Science*, 21 (2), pp. 197 – 208.

tition, the outcome of that battle depends on how closely the product offered matches the buyer's preferences and the (marginal) costs of the sellers. The firm with the combined product design + cost advantage wins at a price that leaves the other firm with zero profits. The impact of price discrimination on merger review is then conceptually straightforward : does the withdrawal of an independent seller increase prices more when initial competition is intense (as with price discrimination) or when competition is less fierce (as with Uniform Pricing) ? While there is no completely general answer to this question, much of merger policy is predicated on the belief that "loosing one firm" is less serious when competition is intense, except for the case of merger to monopoly. In this view then, for a given number of rivals able to sell to the consumer, customised pricing would if anything decrease the horizontal concerns from a merger.

There is a new twist however. The traditional literature on competition and price discrimination assumes that all sellers have the same information about all potential customers. In the digital age, where firms acquire significant information about the preferences of their customers, such an assumption is no longer appropriate. As a result, the match between product offered and consumer preferences depends very much on the (different) amount of information that the firms have about consumers. So, to the traditional « exogenous » product differentiation one must add an « endogenous » differentiation due to the fact that digital sellers typically manage the range of goods and offers seen by a given consumer based on the information that they have acquired about the consumer's preferences. In practice, this means that *one cannot assess the likely price effects of a merger with looking into how much the two merging parties and their remaining rivals know about individual consumers*. Again, this is best understood from a few examples.

There are 1000 customers purchasing products from digital sales sites or platforms. There are four main digital sellers, A, B, C and D. These sellers are differentiated in the sense that they have access to somewhat different sets of products which they can include in the offers tailored to each consumer. Each firm has a 25% share of sales. In a first scenario, all firms have the same information about each of the 1000 potential customers. In this case, our previous analysis applies : the market shares provide a good first view of the potential effects of mergers under the proviso that, with four equal-sized firm, an industry with individualised pricing is likely to be more competitive than a similar industry with uniform pricing. Now assume that there are two groups of consumers, 1 and 2. The only difference between these two groups of consumers is the information that various sellers have about their preferences and/or shopping habits. Suppose that firm A and B have good information about consumers in group 1, while C and D have good information about consumers in group 2.

To keep matter simple, assume further that A and B have the *same* information on customers and so have C and D. Suppose first that there is a merger between B and C. While this would still put upward pressure on prices, this effect would be mitigated by the fact that each battle for each single consumer would still involve two firms with good information on the consumer. More precisely, for each customer, we would go from two

well-informed suppliers and two poorly informed ones to one poorly informed supplier, one unchanged well-informed one and another well informed company but offering a broader range of products than B could on its own. Indeed, it is not clear that one can a priori rule out that the net effect of the merger would be beneficial to consumers since post merger competition for group 1 customers might well be more intensified than pre-merger. The same considerations apply to group 2 consumers. Now, assume that there is a merger between A and B. This merger does not improve the information available to any market participants²⁴⁶⁸ and hence does not extent the set of products which can be offered by a firm with adequate consumer information.

Generalising from these examples, there are two main points to be made. Firstly, in a world where digital sales enable customised pricing and make it possible for firms to acquire significant – but different – amounts of information about specific customers the « market », as defined in the previous section, is much more liable to segmentation so that one must pay close attention to whether the merging parties are or not “especially close competitors” not only in terms of products but also in terms of consumer information. Secondly mergers can have pro-competitive information-sharing benefits. The importance of such benefits is also likely to be larger if the merging parties have good information about different segments of the customer population.

Unfortunately, the emerging literature about competitive customized offers is not yet settled enough to provide us with many other robust insights. Still it is useful to understand what we have learned so far and what the main directions of current research are. There are two main strands of the literature, one where consumers actively manage the information that sellers can obtain about their identity and/or behaviour and one where consumers are passive in that respect.

To better understand the crucial difference between “passive” and “active” consumer environment, consider two firms trying to “poach” each other’s customers.²⁴⁶⁹ The “poaching” analogy is appropriate since, without uniform pricing, each customer is a separate « prey ».

“Passive” consumers are those who do not actively manage their personal information so that they can be readily identified by their current suppliers who can make tailored offered based on the customer-specific information which they hold. The intensity of competition between suppliers depend on two effects. The “defence” effect refers to the current’s supplier’s willingness and ability to fight off any attempt to steal some of its current customers. As explained above, individualised pricing increases this willingness to fight as the firm can offer better terms to the threatened customer without also having to offer better terms to others. This leads to more intense competition²⁴⁷⁰. The « offense » effect refers to the rival’s willingness and ability to « poach » by making a better

2468 Unless A and B has similar amount of information but somewhat different information, in which

2469 The “poaching” intuition goes back to Fudenberg, D. And J. Tirole, 2000, « Customer Poaching and Brand Switching », *Rand Journal of Economics*, 31 ;4, pp. 634 – 657.

2470 This is true as long as there is no fixed cost to targeting a rival’s customer. With fixed costs the very prospect of a fiercer response by the current supplier could discourage any attempt to poach in the first place, softening competition.

offer to the customer. Since the rival does not have specific information about the consumer it can only make a single, uniform, price offer to those it seeks to poach. The rival is more willing to make such an offer if it can be limited to the targeted customer, i.e. if it does not have to offer the same deals to its current customers. With passive customers, the rival firm is fully able to identify current customers and can then prevent them from choosing the « poaching » offer over their current personalised deal. This ability to screen out current customers leads to more intense competition.²⁴⁷¹

“Active” consumers can in principle manage their personal information in a number of ways. They can, for example, simply refuse to supply personal information to their supplier (e.g. by turning off cookies). This has both advantages and disadvantages. On the negative side, it reduces the supplier’s ability to display products which are more likely to appeal to the customer’s tastes and it makes it impossible to enjoy discounts offered to repeat customers. On the plus side, anonymity means that suppliers are unable to gauge the willingness to pay of the consumer and adapt their prices to extract most of the surplus. It also moves the customer into a segment of the market where rival suppliers compete on a more level playing field, which might result in tougher competition and lower prices. Alternatively, a consumer could *choose* when to have its cookies on or off, i.e. when to be recognised as a specific individual buyer and when not too. Such a strategy offers a better trade-off to consumers since they can get some of the benefits from receiving tailored offers while keeping the ability to evade individualised pricing aimed at extracting a large share of her surplus.

We can now see how the consumer’s ability to actively manage her information affects the intensity of competition. The « defence » effect discussed above is unchanged and works toward intensifying competition. On the other hand, an active consumer could “turn off” her cookies in order to benefit from the better offer made to the consumers that her supplier is trying to poach. This, in turn makes poaching more costly as the supplier loses revenues on current consumers switching to the lower priced offer. This decreases the incentives to poach and hence decreases the intensity of competition. Indeed, if the quality of information is such that each firm can perfectly discriminate across its own customers, Chen & Lyer (2018)²⁴⁷² show that any incentive to “poach” disappears : each firm can then extract the full consumer surplus from its consumers.

While there are currently no papers formally investigating the effect of individualised pricing and potential strategic behaviour on the part of consumers on mergers, one can still draw some lessons and raise a few issues. The first lesson is that one should not conclude too easily that the individualised offers enabled by digitalisation lead to tougher competition and hence to a likely lessening of merger-related price increases (except for merger to monopoly). Two further factors should be taken into account: the informational *asymmetries* between suppliers and the rules governing the use and ownership of personal information. As explained above, information asymmetries lead

2471 This is similar to the switching cost literature where the ability to discriminate between “captive” and “new” customers leads to more intense “second period” competition.

2472 Chen, Y. and G. Lyer, 2002, Consumer Addressability and Customized Pricing, *Marketing Science*, 21 (2), pp. 197 – 208.

to market segmentation, which can either lessen or increase the loss of competition due to a merger. More importantly perhaps, it does not seem possible to assess the effect of digitalisation on mergers without knowing what the rules governing the ownership and use of personal data are.

For example, are internet sellers allowed to decline service to potential clients who refuse to activate cookies? If they are and do, then we are in the “passive” consumer environment described above. If they are not or do not, then consumers have at least the opportunity to actively manage their online identities, which can affect the intensity of competition and hence the assessment of mergers. But do consumers actually manage their individual profile in order to obtain better deals? we currently do not know the answer.

Similarly, ownership matters, not only for merger review but for the design of potential remedies. Suppose first that companies own the consumer data that they collect through their own operations. If the merger raises concerns in terms of prices to final consumers and/or conditions offered to other sides of a digital platform (e.g. advertising), sharing of customer data with third parties might increase competitive pressure on the merged entity.

Suppose now that property rights over consumer data remain with individual customers. In principle, this means that consumers control access to their personal information. However, it would be a mistake to assume that such an allocation of property rights automatically solve concerns about market power and competition. Indeed, as we have seen above, allowing consumers to hide their personal information when it is in their private interest to do so can actually lead to a substantial lessening of competition. This is just one example of an important theme: individual consumer decisions regarding their personal information do not necessarily go in the direction of maximising overall consumer surplus. Another example of this issue arises with the sale of personal data. In particular, consumers who have property rights on their own personal information would have the right to « sell » this personal information. However, companies would have an incentive to pay a higher price for information to which they have *exclusive* access. While selling at this higher price would be individually rational for a consumer, the very fact that firms can gain exclusivity over this information would likely decrease the intensity of competition or impede entry.²⁴⁷³ Again this suggests that voiding some exclusivity clause might be a useful remedy in a merger context. Moreover, one should also consider that a merged entity pooling its exclusive customer data is less likely to offer access to these data to rivals at attractive terms than each of the entity was before the merger. In other words, not only is data exclusivity a potential source of remedies, it is a potential basis for a theory of harm.

2473 See Rasmussen, E.B., J.M. Ramseyer and J.S. Wiley Jr, « Naked Exclusion », *American Economic Review*, 81 :5, pp. 1137 – 1145, and Aghion, P. and P. Bolton, 1987, « Contracts as a Barrier to Entry », *American Economic Review*, 77 :3, pp. 388 – 401, for different explanations of why individual buyers might act against the common consumer interest.

9.5.2.2. Advertising

Several important digital companies rely on a business model where they derive significant income from the placing of digital ads on their sites. This is true of internet sellers (Amazon), social media companies (Facebook) and search companies. A common feature of these otherwise rather different firms is that they offer the possibility of tailoring the distribution of ads to the characteristics of individual consumers. This means not only that targeted customers are more likely to read the ad and act on it, but also that a given company can actually choose which particular format of its ad the consumer is exposed to. Clearly, the ability to target ads in such a manner is a significant competitive advantage for ad-space offering sites or platforms. This reinforces the importance of customer-specific data in merger review.

In this case, however, the main issue is not how this data and its ownership interacts with individual pricing and market segmentation. The main issue is one of scale, for two reasons. Firstly, advertisers might face a fixed cost in designing their ads for a specific platform. This puts a premium on platform with a large base of customers. There is nothing specific to digital platforms here, except maybe for the fact that the portability of ads across platforms (and hence the fixed cost above) depends on the digital formats chosen by different platforms. Secondly, experience with a larger number of customers and the data resulting from this experience are likely to lead to better ads/consumer matches, making the platform more attractive to advertisers. While some might think of this type of scale effect as solely an efficiency, they are still relevant when assessing whether a merger is likely to create excessive market power or even a dominant position.

9.5.2.3. Data

The importance of data has already surfaced as a significant factor in our discussion so far. We saw that, for internet sellers, data about consumers can lead to market segmentation and that, for businesses relying on targeted advertising, it is important to understand the magnitude of data-specific scale economies. But data is even more pervasive than this in the digital world. Indeed, if we refer back to Table 1, we see that data matters for essentially all types of digital products and services.

While the collection and use of data has been a main theme of the ongoing debate about policing the digital sector, intellectual honesty forces us to recognise that very little is known about how truly important data is within various business models. By this we do not of course mean that data does not matter. It clearly does. The accuracy of search algorithm does rely on the exploitation of huge quantities of data, data does help improve logistics and train all sorts of algorithms, including those in robotics. However, from the point of view of merger policy we need to know how the value of data *changes* with the amount and type of data collected. We also need to know how long-lasting any data advantage might be.

Let us start with the marginal advantage derived from access to additional data. This

clearly depends on the type of data involved and what this data is used for. In search, the main issue is how much better the algorithm can get if it can rely on even more billions of data points about what consumers search for and where the best answers can be found. Is the additional advantage mostly exhausted at the level of data obtained by Google? Is the data advantage of Google over Bing significant? While there is some evidence that additional data is still useful at very large levels to help give better results for unusual searches we just do not know very much about the magnitude of this effect or the value that consumers place on these “tail” searches. What about data about the users themselves? As discussed above such data is used to target advertising more effectively and can also be used to price discriminate across consumers. But how much does one really need to know in order to perform such targeting/tailoring proficiently? How much does additional information about the same consumers help? Also, while the goal is to design an environment which is specific to a single customer, how much information about a given customer can be inferred from data about other customers with similar characteristics? Finally, do consumers actually enjoy such a personalised treatment? Up to what point? Are some consumers liable to reject this approach for environments where they are freer to search for new items and do not have to fear being charged higher prices than their neighbours? Similar issue emerge in AI/robotics. Suppose that a firm designs face recognition software. This requires very specific data set with a large number of individuals photographed from a significant number of view points. These are not readily available. So what is the effect of a merger between a firm with a data set of size X and another firm with a data set of size Y ? Furthermore, as the face recognition products are sold and used in the market, does the usage data go back to the product designer? How useful is it? What is the marginal value of additional data?

Unfortunately, it is hard to conduct a cogent merger policy with respect to data without knowing the answers to such questions. If all that matters is the depth of knowledge about a given individual and there is little inference from one customer to the other, then the joining of two firms with information about different sets of individuals does provide any significant advantage to the merged entity. Even mergers between firms with knowledge about overlapping groups of consumers would not have much of an effect through the “data channel” if the marginal return from knowing “even more” about a given user is small, either because the improvement in targeting would be small or because any further increase in targeting would risk disenfranchising a sufficient number of customers.

The marginal value of new data also depends on the speed with which the information contained in old data depreciates. In search, for example, both the type of query favoured by the public and the sites where appropriate answers can be found changes constantly. So, how useful is three years old data? Ten years old? If we are to conduct a reliable review of mergers on the data side we need to have some knowledge of these rates of obsolescence. Obsolescence also matters when it comes to ad/product targeting. Are consumers’ preferences relatively stable over time or not. Does it depend on the type of consumers, on the type of products, on the types of sites?

Table 9.2 : Type of data

Type of Data		Social Net-works	Sales Channels/ Platforms	Search	Robotics
What is it About ?	Consumers	XX	XXX	XX	X
	Sought-After Information	X		XXX	
	Others				XXX
What is it Used for ?		Network Expansion Ads Targeting « Viral » Communication	Product Targeting. Ads targeting. Custom Prices	Improve Search Ads targeting.	Training + « feeding » AI Algorithms
How is it Obtained	By-product of main Activity	XXX	XXX	XXX	XX
	Bespoke				XXX
	Public source			XX	X
How Easy to Replicate ?		Medium (ads) Hard (Links)	Medium	Hard (search) Medium (Ads)	Wide Range Depending on Task and Environment
Useful Life-time		Medium to Long	Short to Medium	Short to Long	Depend on task and environment.

While we feel somewhat apologetic about turning this section into a set of questions, we believe that it is important to acknowledge the lack of information which is currently available to competition authorities in order to properly evaluate the role of data in digital mergers. This affects not only the authorities' ability to substantiate possible theory of harms based on foreclosure and hence to implement access remedies, it also makes it hard for merging entities to make data-related efficiency arguments convincingly.

Overall then, even though it might sound trite, we believe that the best approach, while we wait for more research to answer the questions above, is to look at the role of data on a case by case basis, hopefully with the help of credible information provided by the parties or the complainants. This might eventually help us to isolate more general principles, the necessary evidence for which is currently sorely lacking.

9.5.3. Efficiencies

When dealing with traditional mergers, Competition Authorities mostly focus on variable cost efficiencies. These are seen as a proxy for marginal costs and hence as more likely to be at least partially passed on to consumers. A rather general feature of digital sectors such as telecom, digital selling or search is that marginal costs are very small so that traditional merger-specific efficiencies are likely to be extremely small. Significant efficiencies must therefore come from somewhere else.

We encountered one such type of efficiency in section 6.1., where the sharing of customer-specific information between the merging parties could lead to increased competition in some segments of the market. In a sense though, this type of « efficiency » is very similar to the data-related efficiencies discussed in section 6.3 as it is more likely to arise if the merging parties hold information about different types of consumers or at least different aspects of consumer behaviour. In other words, these efficiencies stem from some form of *complementarity* between the information held by each of the companies. Indeed, it seems hard to identify any pervasive source of “digital” efficiencies which cannot be tracked back to data/information complementarities. For example, one might argue that, for companies needing to « train » algorithms, especially AI, access to more proprietary data leads to an improvement in the quality of the product offered to customers. However, additional training data is only useful if it differs in some dimension from the data already controlled by the other merging partner. What matters then is not scale itself but the complementarity between the data sets contributed by the two parties.

Another potential source of efficiency is an increase in the interoperability of algorithms or in the compatibility between data sets. For example, if a company like Google acquires a company providing a « vertical » specialised search service, such as a price-comparison site or a news service, one cannot a priori reject possibility that a smoother interaction between Google’s general search algorithm and the specialised vertical algorithm might be achieved. Clearly, assessing the existence and magnitude of such efficiencies is well beyond the ability of most competition authorities and requires that relevant technical expertise be made available to them in the near future. Of course, one needs to check whether these potential efficiencies are likely to be merger-specific. There are good reasons to believe that they might be as achieving smooth operation between fast changing proprietary algorithms might not be possible without revealing some of the original – and hence valuable, features of these algorithms. In a similar vein, a merged company might be more likely to harmonise the format under which valuable data is available, saving on transaction costs and achieving scale effects *which would not have been reachable pre-merger*. In this last case though, one should still compare the benefits achieved through the merger to common policy alternatives such as the development of standards. The potential efficiencies associated with innovation are discussed in the next section.

9.5.4. Innovation

Our discussion of mergers and innovation broadly follows Régibeau and Rockett (2019)²⁴⁷⁴. As for the price/quantity aspects of mergers, the first step is to determine the horizontal overlap between merging parties in downstream product markets and/or technology markets, requiring divestment when this overlap is significant enough and not compensated by clear efficiencies. There is nothing specific to digital sectors at this level.

The second step consists in examining types of efficiencies which are both merger and innovation specific. These efficiencies are listed in the following table.

Table 9.3 : Innovation-Related Merger-Specific Efficiencies

Source of Efficiency	In a Nutshell	Digital?
Internal Diffusion of Knowledge	Unless technology/data is easily licensed pre-merger or spills over easily, the merger leads to better sharing between the parties.	Potentially important : algorithms do not enjoy strong IP protection, making licensing unattractive. Less obvious for data.
Spillovers	The merger facilitates partial internalisation of spillovers, increasing incentives to innovate.	Weak : algorithms and data are closely guarded. However, the mobility of critical personnel might in some cases create significant spillovers.
Coordination of R&D Investments	Avoid duplication of effort	Likely to be strong in AI.
Sequential/Complementary Innovation		Strong in innovation related to standard-setting, especially data communication standards
Legal Certainty	Reduces threat of IPR litigation due to ambiguity of IPR coverage.	Strong in standard-setting context, weaker otherwise.

While mostly self-contained, Table 9.3. calls for a couple of comments. Firstly, the benefits from coordinating R&D investments can only be significant for « directed » research, i.e. for research efforts specifically directed at solving well-defined problems. The potential for such synergies will therefore depend on the specific digital sector considered. For example, there might be significant savings in « training » a single AI face-recognition algorithm which can then be shared internally. Secondly, mergers make IPR litigation between the parties unnecessary. How much this matters depends on two opposing forces. On one side, the scope of protection granted by IPRs on digital technologies tends to be fairly vague, at least compared to other sectors like pharmaceuticals or Chemicals. This means that legal uncertainty can be considerable. On the other hand, except for standard essential patents, there has not been much litigation of digital patents, suggesting that the fear of litigation might not have much of a chilling effect on innovation.

Still following Régibeau and Rockett (2019), the third step involves checking whether the parties significantly control some hard to replicate inputs into the innovation process. If so competition authorities should investigate the potential effect of the merger on the parties' ability and incentives to withhold (or increase the price of) such inputs from rival

2474 P. Régibeau & C. Rockett, Mergers and Innovation, (2019) 64(1) Antitrust Bulletin 31.

firms conducting innovation in similar technological fields. As discussed in section 6.3., data seems to be the most likely source for such concerns in digital sectors. This can be contrasted with recent cases such as the *Dow-Dupont* merger²⁴⁷⁵, where the European Commission demanded the divestment of one of the parties' whole research team in a given R&D area or the *GSK-Novartis* "swap"²⁴⁷⁶, where a condition for approving the transaction was that GSK would preserve R&D capability in oncology after ceding its oncology division to Novartis. In both cases, the concern was that not only qualified personnel but effective research *teams* would otherwise be a scarce resource that other rivals would struggle to replicate. In this respect, while specific, long-standing, research teams might also be an issue in some specific areas of digital research, the bread and butter of a large part of research in digital sectors involves skills which are relatively widely available and can be transferred more easily from one area of research to others than in other sectors.

9.5.5. Tacit Collusion

There is a lively literature on how algorithms, and especially AI-based algorithms, could be used to facilitate tacit collusion between rivals. The basic idea is simple. We know that coordination between independent parties is easier to achieve and maintain if the parties can agree on a common price (or a set of targets), can detect any deviation from this agreement quickly and precisely and can react to such deviations quickly. Moreover, reactions to deviations are more effective if they can be narrowly targeted at the rogue party.

One can reasonably argue that algorithms which roam the internet to check for prices and might even be used to automatically affect the firm's own behaviour tick most of these boxes²⁴⁷⁷. Several aspects of such algorithms matter. The first aspects are information reach and speed. If firm A uses such an algorithm, then it can monitor prices more thoroughly, detect price changes by rivals more quickly and react immediately. A second aspect is the algorithms' ability to design more individualised pricing schemes. This makes it easier to target any possible « retaliation » to the customers of the deviating party. A third aspect stems from the potential AIU dimension of algorithms.

If firms use advanced AI algorithm, then they might be able to coordinate their actions with very minimal human involvement. Moreover, the line between unilateral and coordinated conduct can be blurred. This is because an AI-intensive pricing (for example) algorithm would not even need to be fed any « targets » to coordinate on. It can, through its interaction with other firms' algorithms simply « learn » what the appropriate targets are and « learn » what the best enforcement strategies are. In fact, the profit-maximising strategies eventually adopted by AI algorithms need not even closely resemble the type of « target, deviation, punishment » approaches that companies – and competition au-

2475 Case M.7932 – Dow/Dupont (2017).

2476 Case M.7276, GSK-Novartis (2015).

2477 There are opposing effects. For example, complex algorithms could also be used to cover up cheating on the agreement. See Ezrachi, A. and M.E. Stucke, *Virtual Competition*, (Harvard University Press, 2016).

thorities – tend to rely upon. So not only do AI algorithms help solve the issue of finding something the parties can agree on, establishing infringement would likely require expertise not currently available to most Competition Authorities.

While the possible impact of digitalisation on tacit collusion is beginning to be well understood, the consequences for merger policy are much less clear. There are three main reasons why one might fear that a merger would facilitate collusion. Firstly, the merger might improve market transparency. For example. Secondly, the merger reduces the number of independent actors by one. In highly concentrated markets – where tacit collusion is a priori more likely – this can significantly reduce the difficulty of coordination, from « agreeing » on targets to monitoring the behaviour of rivals. Finally, it is generally believed that tacit coordination becomes easier if the parties are more symmetric in terms of costs, market shares, types of products and so on. The acquisition of a destabilising “maverick” can be seen as a special case of this symmetry argument. Is any of those three potential concerns more or less important in a digital context?

For traditional competition policy, the number of firms involved is one of the key factors affecting the likelihood of tacit collusion. More firms simply mean a greater need to monitor behaviour in a noisy environment. To the extent that « algorithmic collusion » is significantly more efficient than collusion in non-digital environments, one would think that larger numbers of firms can be accommodated more readily, decreasing the relevance of this factor for merger assessment. Of course, the same argument suggests that scrutiny for tacit collusion should be extended to less concentrated markets than is currently the case. This, however, is not merger-specific.

Symmetry matters mostly because symmetric firms are more likely to agree on a conduct and because they behave similarly, making the monitoring of rival behaviour easier. It is also true that, under some fairly general conditions, symmetry facilitates the design of incentive-compatible collusive schemes. Because algorithms – and especially AI-intensive algorithms – make it easier to implement and monitor rather complex tacit agreements, accommodating more diverse firms within the collusive group should be becoming easier, not harder. In turn, this means that the fact that a merger increases or decreases the overall symmetry of the sector should become less relevant when assessing how the merger affects the prospect for tacit collusion in a digital environment.

“Mavericks” are a special case of asymmetry. They are firms who, because of their product line, location, technology or simply « culture » tend to behave in a manner which is not conducive to tacit collusion. Clearly the acquisition of such a « maverick » should still raise eyebrows. Indeed, there are particular types of “digital” maverick which should be protected. This includes firms who have chosen not to hand their marketing/strategy to the type of algorithm that might facilitate collusion and those who use digital technology not to « play ball » but, on the contrary, to protect their customer relations (including prices and product offering) from prying digital eyes.

9.5.6. Conglomerate Mergers

As pointed out by Bourreau and De Streel (2019)²⁴⁷⁸, there are several factors which favour the emergence of conglomerates in at least part of the digital economy. On the supply side, there is the commonality of the skills needed to succeed in digital markets. Having hoarded large pools of digital talents, firms like Google or Facebook then find it profitable to expand in other markets where similar skills can be leveraged. On the demand side, consumers find “ecosystems” where the same firm supplies a number of seemingly unrelated products convenient and are therefore willing to pay a premium for products belonging to such an ecology. Some of the products available within an ecosystem might also be complements so that, in the absence of full interoperability across companies, consumers might be better off purchasing all “components” from the same seller. In turn, companies are eager to capture this premium. They might also be attracted by the fact that such “bundling” of unrelated products *can*, under some condition, lead to greater differentiation between suppliers and hence to softer competition.

The authors identify several mechanisms through which the emergence of digital conglomerates – and hence the approval of digital conglomerate mergers can affect competition adversely. Their goal is however different from us. Having – convincingly – argued that conglomerates are more likely to emerge in a digital world, they then proceed to discuss how competition policy might best deal with both conglomerate mergers and the type of anticompetitive conduct that a conglomerate structure might facilitate. By contrast our interest lies strictly with mergers with a specific focus on effects which arise, or are at least magnified *because of* the digital nature of the sectors considered. From this more restrictive perspective, it seems to us that the main specifically “digital” issue stems from the fact that similar sets of skills and assets allow companies to be innovative in a wide number of unrelated – or possibly complementary markets. While the modular nature of digital technology does put more emphasis on the creation of “ecologies” or “systems”, the issues raised by that trend are not new and do not, in our opinion, require new tools or a change in the practice of merger review. There might be room for greater emphasis on the development of industry-wide standards and a greater use of interoperability remedies, but these topics have already been widely considered by competition authorities over the last ten years and remain on their agenda.

As Bourreau and De Streel correctly argue, the similarity and fungibility of the skill sets across different digital markets, or even digital sectors, creates very large economies of scope. Within merger review, the magnitude of these economies of scope has consequences when identifying potential rivals as companies which operate in fields as distinct as social media, artificial intelligence/robotics and search can quickly end up competing, not only in new, emerging markets, but also, potentially at least, in the markets where they initially established a strong position. For example Alphabet/Google has moved into AI-driven robotics, Amazon is a leading supplier in the provision of cloud services, which one might reasonably have expected to be the province of companies

2478 Bourreau, M. and A. De Streel, 2019, “Digital Conglomerates and EU Competition Policy”, Working Paper, Telecom ParisTech and University of Namur.

like Microsoft, and companies as diverse as Apple, Facebook, Google and Amazon have entered – or considered entering – the market for electronic payments.

The consequences of this development for merger analysis are not obvious. On the one hand, common skill sets suggest that the negative effects of mergers, conglomerate or not, might be more readily kept in check by the threat of potential entry than in a non-digital environment. In a sense, this view would be consistent with the Commission's approach in *Dow-Dupont* where the notion of overlap in innovation markets was extended from the "overlap of product pipelines" which had long been considered in pharmaceutical mergers to overlap in the ability to develop similar products in the future. In this view though, as discussed in Régibeau and Rockett (2019), such overlap is only a concern if this development ability relies on resources which are in scarce supply or have been locked in by the merging parties. On the other hand, competition authorities should pay more attention to factors or deliberate strategies which might hamper this relatively free access to resources. For example, contractual clauses or "gentlemen's agreements" preventing poaching or draconian non-compete clauses can restrict the flow of necessary skills, especially when the relevant labour markets have a significant local dimension (e.g. Silicon Valley).

Prat and Valletti (2019)²⁴⁷⁹ provide an interestingly new perspective on mergers between digital platforms. Instead of defining the fields of activity of each platform in terms of the functionalities which it offers, the authors look at these platforms as "attention brokers", whose main goal is to attract users and get them to spend time in their respective "ecology". The more time spent, the more users are exposed to adds and to a variety of offers, both of which eventually yield revenues. Moreover, users generate data about their personal characteristics and shopping habits which can be used to better target advertising and/or can be sold to third parties.

The relevance of this new view for conglomerate mergers is that a platform's "market power" now depends on its ability to retain users within its own ecology and to use this to restrict the supply of advertising, leading to higher prices for both advertising and the corresponding products. This ability is increased by any acquisition which helps populate this ecology, whether or not there are any links of substitution or complementarity between the firm's initial products and those acquired through the merger. Traditional measures of concentration can therefore easily understate, or even miss entirely, this type of merger-specific increase in market power. In particular, the authors argue that appropriate measures of platform concentration can only be defined at the level of individual users, echoing some of the themes developed in sections 9.5.1 and 9.5.2 above.

9.5.7. Incentives to Abuse a Dominant Position and Merger Control

As previously discussed, it is entirely proper for merger review to assess whether the merger is likely to significantly increase the new entity's ability and incentives to engage in abuse of dominance. This is because ex post detection of anticompetitive conduct

2479 Pratt, A. and T. Valletti, 2019, "Attention Oligopolies", SSRN id3197930.

and the authority to enforce workable remedies ex post are both imperfect. This raises four questions: are digital sectors prone to be dominated by a single firm? Would the cost of enhancing such dominance through merger be particularly high? Is anticompetitive behaviour especially hard to detect or remedy in (some) digital sectors? Are there types of abuses which are more likely in digital sectors?

9.5.7.1. Dominance in Digital Sectors

The digital economy landscape features a number of very visible large companies, including Amazon, Apple, Facebook, Microsoft and Google, which are likely to hold a dominant position in at least one relevant market. However, this paints a misleading picture of dominance in the digital world. Referring back to Table 1, we see that the prevalence of dominance differs quite significantly across digital sectors. In telecommunication, for example, the growing importance of data has not led to dominance of mobile operators in national markets. Moreover, while the mobile OS market is essentially a global duopoly between IOS and Android, the mobile phone market itself is still rather competitive and has experienced noticeable changes in market shares, as shown in the following table. Robotic markets have not yet revealed any tendency to “tip” in favour of one or two firms either (see Table 9.4.).

Table 9.4. : Global Shares (Shipments) of Leading Smartphone Vendors

Company	Q2 2010	Q2 2012	Q2 2014	Q2 2016	Q2 2018
Apple	13%	16.6%	11.7%	11.7%	12.1%
Samsung	5.6%	32.2%	24.8%	22.7%	20.89%
Nokia	37.3%				
RIM	17.4%				
Huawei		4.1%	6.7%	9.3%	15.8%
Vivo				4.8%	
ZTE					
HTC	6.8%	4.1%			
LG		3.7%	4.9%		
Sony		4.5%			
Xiaomi			4.6%	3.9%	9.3%
Lenovo		3.1%	5.2%		
Oppo				6.6%	8.6%
Others	19.9%	28.6%	46.1%	41%	33.2%

Source : Statistica, <https://www.statista.com/statistics/271496/global-market-share-held-by-smartphone-vendors-since-4th-quarter-2009/>

By contrast, the positions of Amazon, Google and Facebook in their respective sectors are clearly very strong. Still, before we conclude that their respective activities are susceptible to dominance and draw conclusions for merger policy, we need to distinguish between the various mechanisms that lie behind the like continued success of these companies. The case of Facebook might be simplest as it benefited from an early mover advantage quickly cemented by large direct network effects. While such network effects

also arise outside of digital sectors, digital technology significantly accelerates the speed at which a significant “installed base” advantage can be built. One could of course argue that this speeds cuts both ways as it would also, in theory at least, allow a potential entrant to build her own base relatively quickly. However, once the leading firm already serves a large proportion of the relevant market then a rival can only take advantage of the potential speed of network building by inducing some customers to switch from the first mover. For a site like Facebook, where each individual builds large networks of friends, this would require a huge amount of coordination across a large number of consumers, which seems unlikely.²⁴⁸⁰ Digital social networks lend themselves to entrenched dominance. Moreover, this dominance does not rely on a better quality of service: Facebook can retain its position even if other social networks offered better functionality (e.g. better organisation of posts) or more attractive/effective data protection policies.

By contrast, both Amazon and Google owe the solidity of their current position to initial excellence reinforced by dynamic economies of scale. For Amazon, these economies of scale translate into an unequaled and self-reinforcing expertise in logistics. Google’s initial quality advantage has enabled the company to gather huge quantities of data about search behaviour which, in turn, makes it easier to keep improving the crucial search algorithm. In both cases then, the platforms remain dominant (partially at least) *because* they can offer a service of higher quality along some important dimensions. In principle then, such dominance could be challenged “on the merits” by developing one’s own logistic expertise, honing a better search algorithm or simply besting the incumbents on another dimension. The difficulty in challenging such dominance head-on stems from dynamic economies of scale: logistic expertise is subject to significant “learning by doing”, which cannot be replicated from scratch by potential entrants. Similarly, some experts²⁴⁸¹ argue that Google’s unmatched data on consumer searches makes it possible to produce more accurate results for “unusual” queries. Since such queries represent a significant share of most users’ searches, the resulting self-reinforcing competitive advantage matters.

Do such sources of dominance have any implications for abuse of dominance in the context of merger policy?

9.5.7.2. Privileged Remedies: Interoperability and Data Sharing

Because digital dominance is often based on some form of dynamic economies of scale, remedies favouring interoperability between suppliers/platforms and remedies involving some form of data sharing/access are likely to be the main tools to deal with merger-related concerns. In the case of social networks, for example, the increased installed base advantage of a merged entity could be remedied by making it easier for users to

2480 See J. Farrell & P. Klemperer, Coordination and Lock-in : Competition with Switching Costs and Network Effects, in Handbook of Industrial Organization, Vol. 3, R. Schmalensee, M. Armstrong, R.D. Willing and R.H. Porter Eds., (North Holland, 2007).

2481 Pratt, A. and T. Valletti, 2019, “Attention Oligopolies”, SSRN id3197930.

interact directly with users on other platforms and/or by measure facilitating the joint switch of users from one platform to the other. By contrast, a merger between search companies might call for giving access to their search data so that rivals can keep up with the pace of improvement of the merged entity's algorithm. Data-sharing could also be a remedy if two AI firms with proprietary "training" data sets would like to merge.

Because interoperability can provide a key check on dominance in digital sectors, policy measures aimed at further improving the transparency of the standard setting process and at streamlining the relationships between standard essential patent owners and users should be encouraged. In turn, such a strong standardisation environment would allow authorities to take a more relaxed approach toward some digital mergers, allowing for the realisation of more merger-specific efficiencies.

9.5.7.3. Abuse of Dominance: Detection and Remedies

Once dominance is established, "digital" companies are liable to deploy the whole panoply of conducts likely to protect them from merit-based competition. As seen on the previous review of cases, this includes tying, exclusivity clauses and foreclosure/raising rivals' costs through access degradation or constructive refusal to deal. In fact there does not seem to be any type of potentially problematic conducts which would be *less* likely because of the underlying digital technology.

On the other hand, we should expect digital players to be especially tempted by strategies which help them protect their specific source of dominance. For Amazon and Google, this would involve restricting rivals' ability to reach critical mass or to access the dominant platform's expertise or information. This suggests paying close attention to decisions affecting the supply of crucial inputs to rivals or making interoperability (and hence multi-homing) between digital platforms more difficult to achieve. For social network companies, strategies aimed at making switching or multi-homing harder should also be scrutinised. Finally, as discussed in the section on data, robotics and AI companies might have incentives to restrict access to the information required to "train" a particular type of algorithm.

In this chapter, however, the accent is not on the possibly changing face of abuse of dominance in a digital world. The relevant question is whether digitalisation increases the likelihood that mergers might facilitate unchecked abuses of dominance. In our current view, this raises three main issues.

The first issue is the magnitude and overall shape of the dynamic economies of scale discussed above. Google appears to have a material advantage due to its larger user base and the information that this generates. But of large is the "slope" of this effect at the scale at which Google and its rivals currently operate? Would a given acquisition significantly further Google's advantage? Would keeping the target out of rivals' hands prevent them from catching up significantly?²⁴⁸² Similar questions would apply to the

²⁴⁸² The point here is not that a merger could generate an "efficiency offence", whatever this means. There are two legitimate sources of concern. The first one is that dominance itself limits the passing of efficiency gain to customers while

logistics advantage of sales platforms like Amazon as well as to developers of robotics/AI-based products. While these questions are not typical of the digital world, the digital world still stands out in that we have little empirical knowledge as to the marginal magnitude of such effects.

The second issue is whether post-mergers abuses of dominance are more difficult to detect or establish in some digital sectors. As we discussed in section 9.3., many digital sectors rely on various forms of algorithms. Those algorithms are closely held secrets. Moreover some of these algorithms are constantly updated and are so complex that they are hardly transparent even to specialists. Such issues have already emerged in specific cases, including the Google “shopping” case where determining whether or not the changes in Google’s general search algorithm resulting in the downgrading of shopping sites was justified by user preferences or was part of a foreclosure strategy proved to be hard.

This lack of transparency is compounded when firms rely on “learning” algorithms which change depending on the feedback they receive: not knowing what this feedback might be one simply cannot predict how such algorithms will evolve. Hence, to the extent that potentially abusive strategies might be implemented through algorithms, detecting such abuses and documenting them up to the usual standard of proof might be difficult. This suggests that, in such digital sectors, competition authorities should be more willing to block mergers which seem likely to increase the parties’ incentives and ability to foreclose rivals or to pursue other types of anti-competitive strategies.

A similar argument can be made with respect to remedies. In some digital sectors, finding robust remedies against abuses of dominance can be an arduous task. Consider, for example, the case of hotel booking platforms. The competition authorities of France, Italy and Sweden decided that Bookings should remove from its contracts any clause requiring hotels to give it room prices which are no lower than the lowest price found on other intermediaries. However, these authorities had to be aware of the fact that Bookings could, in principle, respond to such a ruling by changing its search algorithm in a manner that favours hotels granting them a low price. Most obviously, Bookings could search other sites and simply penalise any hotels charging lower price elsewhere. More subtly, Bookings could enhance the link between ranking and the actual number of bookings received from this hotel, or it could link the search ranking to the discrepancy between clicks and actual bookings. Clearly then, it is hard to design an effective remedy without a very intrusive – and frequently repeated – examination of the search algorithm, which is at the very core of hotel booking businesses. The continuing saga of the appropriate remedies in Google’s “android” cases offers further evidence that designing effective remedies for algorithm-based companies is not for the faint hearted. Accordingly, anticipating such difficulties, competition authorities could reasonably decide to conduct tougher merger reviews in this type of sector.

increased dominance makes abuse of dominance more likely. If abuses are difficult to catch, the balance can tip toward this second effect. The second point is that, in concentrated industries, there can be pre-emption incentives in the sense that a dominant firm would outbid a rival or potential entrant even though the efficiency gains from acquiring the target are larger for those rivals.

9.6. Conclusion and recommendations

Many 'new developments' in competition policy are overhyped leading to calls for revolutions or new paradigms when relatively small changes in practice are often all that is needed to deal effectively with the modified environment. Examples of such tempests in a tea cup include 'network effects', 'winner takes all (or most)' markets and, though to a lesser extent, the purported emergence of 'platform competition'. While the development of the digital economy does not either call for a revolution in how we conduct competition policy, it is likely to require some significant changes in competition guidelines and will require close coordination between competition authorities and other regulatory agencies. While this chapter deals with merger review, this overall conclusion applies also to competition policy as a whole.

The main characteristics of digital technologies are algorithms, data, bridging of distance and speed. These characteristics have a number of important consequences. Algorithms are difficult to fully grasp and even harder to police. This makes the detection of abusive conduct and the implementation of effective remedies harder. Stepping back, then, this might justify a tougher line for mergers which are likely to facilitate such abusive conducts. On the other hand, in our view at least, the purported effect of algorithms on companies' ability to implicitly collude does not have strong implications for merger policy, except maybe for having a closer look at mergers in somewhat less concentrated markets: if collusion is easier then the level of concentration at which it becomes feasible is also lower.

The bridging of distances has obvious implications for market definition when the merging parties take orders *and* deliver products online. A more subtle analysis is required when parties take orders online but still deliver goods or services physically. The relevant notion of "speed" is not speed of innovation. While many digital sectors are currently characterised by fast-paced innovation, there is nothing intrinsically "digital" to this trend. By contrast, it is because digital technology is fast (and spans distances) that network effects can arise much faster than in other sectors. This underlines the need for forward looking merger review and the possibility of using access/interoperability remedies.

The combination of algorithms and data has allowed unprecedented targeting of advertising to online consumers as well as a tailoring of the offers (including prices) received by each individual. This poses a serious challenge to our usual economic analysis of horizontal effects as well as to our traditional approach to market definition. In a very real sense, every individual becomes a "relevant" market, challenging traditional SSNIP tests and "market share-based" approaches to market power. Moreover, in such an environment, the effects of a merger depend not only on the overlap between the customers served by each party but also on the amount and type of information that each party has about those customers. Unfortunately, economic analysis of competition in such settings, while already useful, is not yet mature.

Finally, while the role of data in digital competition is undeniable, we currently lack the information required to derive broad principles as to how data should be considered in merger review. The main problem is that, for a merger, it is mostly the *marginal* return to data which matters: would the combination of the data held by the two parties significantly raise barriers to entry? Would it generate significant merger-specific efficiencies? There is simply no publicly available information to allow us to at least establish some presumptions in the matter. We are therefore back to the “one case at a time until we learn enough” approach.

Chapter 10: Case Study: Standard setting, Internet of Things and Industry 4.0.

Igor Nikolic, Ioannis Lianos, Bjorn Lundqvist with BRICS teams

10.1. Introduction

This chapter will look into the future developments with the advancement of 5G standard and the Internet of Things. We are increasingly seeing various objects connected to the internet and the potential emergence of self-driving cars, connected domestic appliances, smart health devices and even smart cities. However, new technologies will bring new challenges. The aim of this chapter is to examine some potential legal problems with rapid implementation of Internet of Things and new technological solutions.

The structure is the following. The first part of the chapter will explain what IoT is and what benefits it will bring, with special focus on the recent development in BRICS countries. Next, the chapter will explain how the IoT ecosystem works, and how it encompasses a large number of technological standards. Generally, we can observe ‘infrastructure’ standards that read on physical objects that enable connectivity between them (such as 5G and Wi-Fi standards), and ‘upper layer’ standards that concern data acquired by IoT objects. In order for IoT ecosystem to work efficiently we would need to have seamless connectivity between different IoT object, and thus ubiquitous access and use of infrastructure standards, as well as access to data generated by different objects. For example, self-driving cars would all need to use 5G and other infrastructure standards and would need to share driving data between them. However, the successful implementation of infrastructure and upper layer standards can pose different challenges. Namely, patents that read on infostructure standards would need to be widely available and licensed. Standard essential patents are generally required to be licensed on fair, reasonable and non-discriminatory (FRAND) terms, but what exactly those terms are is subject to diverging interpretations. Sharing of data represents further challenges, as there is currently no widely used legal basis or instrument to compel sharing, which also opens a data privacy concerns. The approaches taken in the EU and the US will be compared with nascent practice in BRICS countries.

10.2. Introduction to IoT and Industry 4.0

The concept of Internet of Things (IoT) dates back to the year 1999. The term ‘Internet of Things’ was coined by British technology developer Kevin Ashton during his work at Procter & Gamble,²⁴⁸³ an American consumer goods corporation. It is a phenomenon in which physical entities (things, animals, and humans) are made to function “smartly” by

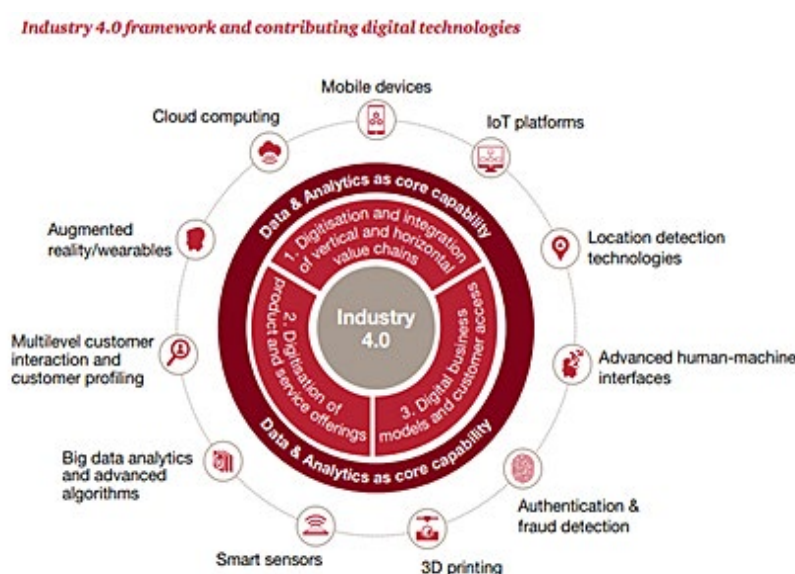
²⁴⁸³ Kevin Ashton is a British technology pioneer who cofounded the Auto-ID Center at the Massachusetts Institute of Technology, which created a global standard system for RFID and other sensors.

connecting them to sensors. These sensors detect any electrical or optical impulse and convert it to a physical parameter which is quantifiable into units. For instance: sensors can identify an electrical impulse and can quantify it as temperature, body pressure, atmospheric pressure, speed and moisture, among others. It is the ability of these sensors to transfer data over the network with the help of internet and without any human or machine intervention that is called the IoT. Devices such as connected (smart) cars, smart cities, smart meters, and smart home are few of the many applications of the IoT.

Considering that the IoT can be implemented to any object of everyday life, it has the potential to trigger mass production of IoT devices, thus giving rise to an industrial revolution. As the first industrial revolution began with the introduction of the steam engine, the second by bringing assembly line mass production, the third through the establishment of automation via electronic systems, the one with the IoT is the fourth one. It is now known as the Industry 4.0.

The scope of the Industry 4.0 is to implement smart connected devices in a system in which the smaller connected units collectively form a 'smart' and 'connected' enterprise going higher up the scale. According to a paper published by Schneider Electric SE (an MNC based in France) in the year 2017, the vision of the Industrial IoT is defined as "The IIoT vision of the world is one where smart connected assets (the things) operate as part of a larger system or systems of systems that make up the smart manufacturing enterprise. The "things" possess varying levels of intelligent functionality, ranging from simple sensing and actuating, to control, optimization and full autonomous operation".²⁴⁸⁴

Picture 10.1: Industry 4.0 framework and contributing digital technologies²⁴⁸⁵



²⁴⁸⁴ John Conway, 'The Industrial Internet of Things: An Evolution to a Smart Manufacturing Enterprise' (2015) Schneider Electric, available at: <<http://www.mhi.org/media/members/15373/131111777451441650.pdf>>.

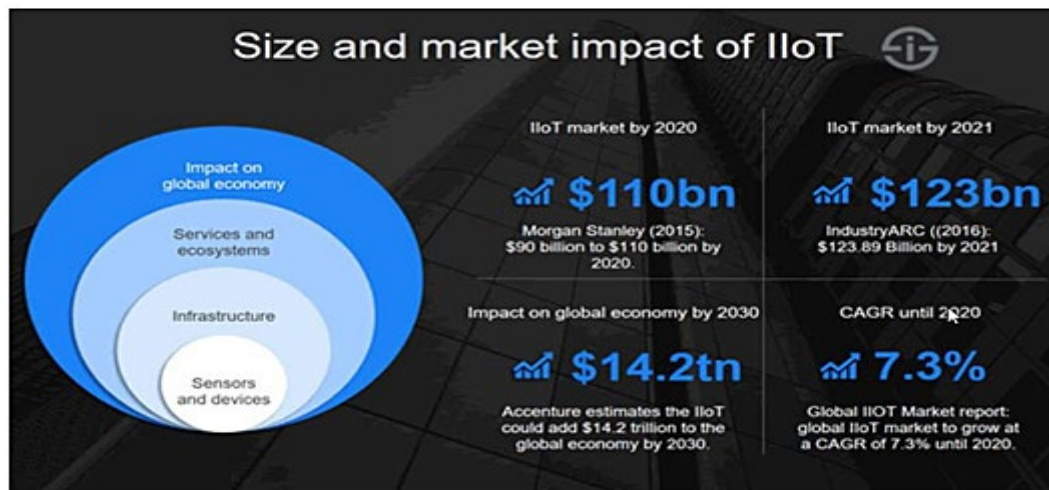
²⁴⁸⁵ PWC, 'Industry 4.0: Building the digital enterprise' (2016), available at: <<https://www.pwc.com/gx/en/industries/industries-4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016.pdf>>.

10.2.1. Level of Development of IIoT

The IIoT has seen multi-faceted development in terms of IoT adoption, market size, investment and profitability. According to *Forbes*: "discrete manufacturing, transportation & logistics and utilities industries are projected to spend \$40 billion each on IoT platforms, systems, and services."²⁴⁸⁶ McKinsey has predicted that the IoT markets will be worth \$581B for ICT –based spend alone by 2020, growing at a compound annual growth rate (CAGR) between 7 and 15%.²⁴⁸⁷ The IIoT market is predicted to reach \$123B in 2021, attaining a CAGR of 7.3% through 2020.²⁴⁸⁸ Smart Cities (23%), Connected Industry (17%) and Connected Buildings (12%) are the top three IoT projects in progress. IoT Analytics found that nearly half of the Smart City projects (45%) are in Europe, while the Americas lead in the area of Connected Health, with 55% of global projects today. The Americas are leading the world in Connected Car IoT projects as well, with 54% of them worldwide.²⁴⁸⁹

The following graphs depict a clearer picture of the development of IIoT worldwide. The first graph portrays the market impact of IIoT, with volume reaching \$110 billion by 2020. The second graph shows the sector-wise growth of IIoT. Clearly Smart Cities have taken the biggest share (23%) of the market.

Picture 10.2.:Size and market impact of IIoT²⁴⁹⁰



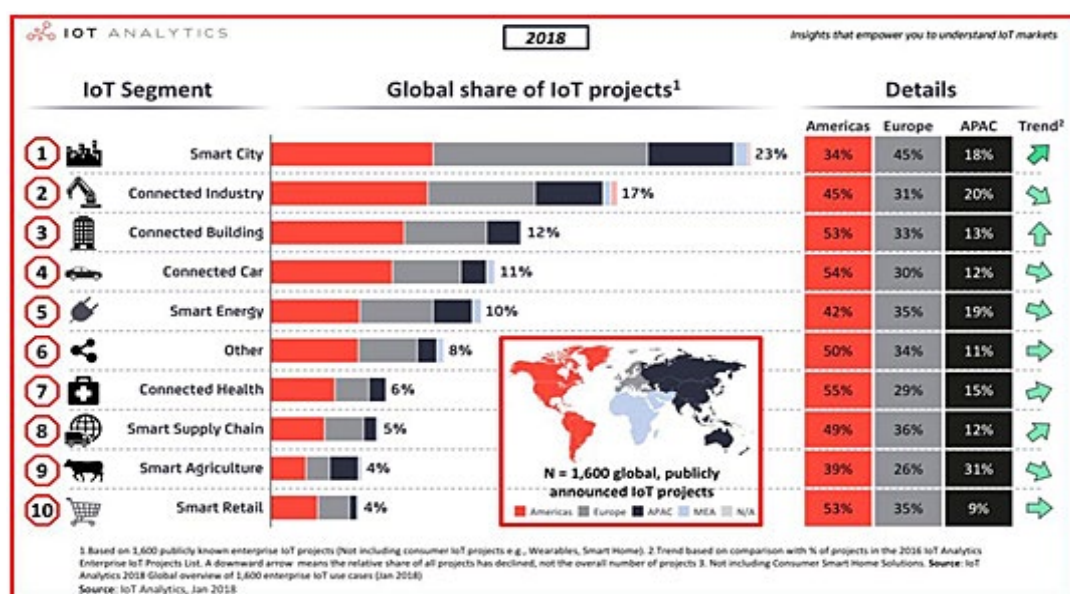
²⁴⁸⁶ Louis Columbus, '10 Charts That Will Challenge Your Perspective of IoT's Growth' *Forbes* (6 June 2018) <<https://www.forbes.com/sites/louiscl Columbus/2018/06/06/10-charts-that-will-challenge-your-perspective-of-iots-growth/#19a4a9603ecc>> .

²⁴⁸⁷ *ibid.*

²⁴⁸⁸ 'The Industrial Internet of Things (IIoT): the business guide to Industrial IoT' <https://www.i-scoop.eu/internet-of-things-guide/industrial-internet-things-iiot-saving-costs-innovation/>

²⁴⁸⁹ Louis Columbus, '10 Charts That Will Challenge Your Perspective of IoT's Growth' *Forbes* (6 June 2018) <<https://www.forbes.com/sites/louiscl Columbus/2018/06/06/10-charts-that-will-challenge-your-perspective-of-iots-growth/#19a4a9603ecc>> .

²⁴⁹⁰ I-Scoop, 'The Industrial Internet of Things (IIoT): the business guide to Industrial IoT' available at: <https://www.i-scoop.eu/internet-of-things-guide/industrial-internet-things-iiot-saving-costs-innovation/>

Picture 10.3: Global share of IoT applications²⁴⁹¹

10.2.1.1. India

The vision for the IoT development in India is to develop connected, secure and smart IoT-based system for its economy, society, environment and global needs. The IoT market in India is expected to grow significantly. India intends to create an IoT industry of \$15 billion by 2020 which will lead to a surge in the number of connected devices from around 200 million to over 2.7 billion by 2020. Gartner has predicted that the revenue generated would be \$300 billion.²⁴⁹²

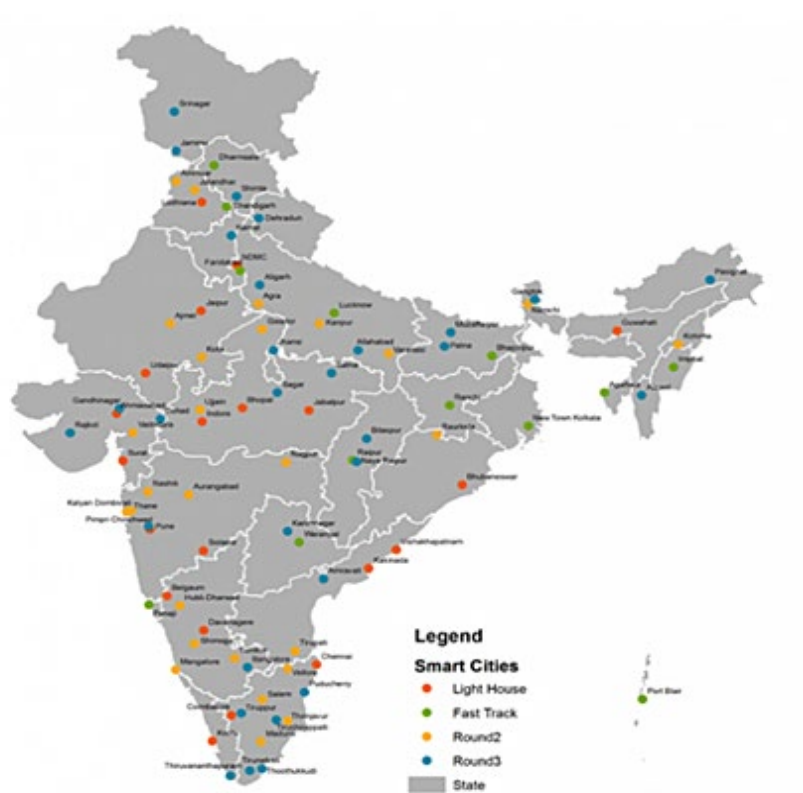
Apart from individual smart solutions, it is the 'Smart Cities' Mission launched by the Government of India that has become one of the biggest IoT use case.²⁴⁹³ The government of India has planned 100 smart cities across the country which involves massive expansion of the IoT. The implementation of smart solution is also seen as a driver for economic growth and improved living conditions for the citizens of India. As per the data from 'Smart City Mission' website, a population of 99,630,069 is estimated to benefit by the mission.²⁴⁹⁴ The following map depicts the distribution of all the cities that will be equipped with smart solutions in a phase-wise plan:

2491 IoT Analytics, 'The Top 10 IoT Segments in 2018 – based on 1,600 real IoT projects' (2018) available at: <https://iot-analytics.com/top-10-iot-segments-2018-real-iot-projects/>

2492 Department of Electronics & Information Technology, Government of India, 'Draft Policy on Internet of Things' (2015) <https://www.mygov.in/sites/default/files/master_image/Revised-Draft-IoT-Policy-2.pdf>.

2493 Smart City Mission, is an urban renewal and retrofitting program by the Government of India with the mission to develop 100 cities across the country making them citizen friendly and sustainable.

2494 'Smart Cities Mission' (Smartnet) <<https://smartnet.niua.org/smart-cities-network>>.

*Picture 10.4: smart cities in India*²⁴⁹⁵

The IoT in India is expected to provide automation solutions for various domains such as health, security, agriculture, automobile disaster management and recovery, traffic management and others. These implementation domains are chosen by keeping in mind the objective of the 'Smart City Mission' to provide an enhanced quality of life, core infrastructure and clean and sustainable environment. Some of the key aspects of Smart Cities would be Smart Parking, Water Management, Smart Grid, Waste Management, Automated Transport System, and Urban Planning.²⁴⁹⁶

10.2.1.2. China

With the global unified standard set to be finalized by the end of 2019, China will commercially launch 5G, becoming one of the first 5G-ready markets in the world. China is determined to make 5G a top priority on its national agenda and to take a leadership role globally. Targeting for a commercial launch in 2020, China aims to secure the perks of timely involvement, building the industry infrastructure and initiating research and application of 5G-related technologies. China is determined to be an early bird in the field of 5G and technology. China's Ministry of Industry and Information Technology (MIIT),²⁴⁹⁷

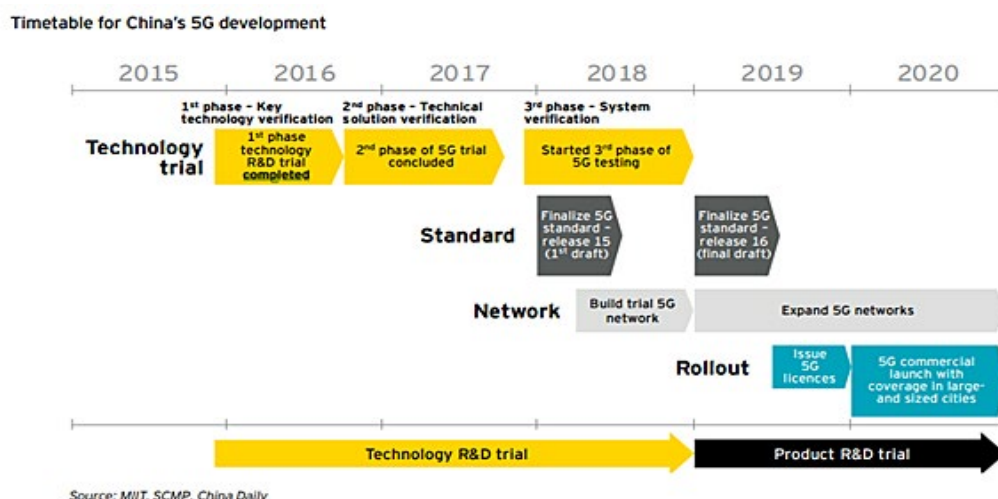
²⁴⁹⁵ Nurfilzah Rohaidi, 'Inside India's \$7.5bn Smart City Challenge' (Govinsider, 9 November 2017) <<https://govinsider.asia/smart-gov/jagan-shah-niua-india-100-smart-cities/>>.

²⁴⁹⁶ 'What is the Smart Grid?' (Smartgrid.gov) <https://www.smartgrid.gov/the_smart_grid/smart_grid.html>.

²⁴⁹⁷ See <http://www.miit.gov.cn/>

National Development and Reform Commission (NDRC),²⁴⁹⁸ and the Ministry of Science and Technology (MOST),²⁴⁹⁹ jointly founded the IMT-2020 (5G) Promotion Group to expedite the formulation of 5G standard in cooperation with other nations in 2013.²⁵⁰⁰ The Government of China has also laid down policies under its 13th Five-Year Plan and the Made in China 2025 plan to support research and development and attempts for commercialization of 5G in 2020 at national levels. Below is the timeline which China is following for 5G development:

Picture 10.5: Timetable for China's 5G development²⁵⁰¹



As far as investment and revenue are concerned, increasing the equipment supply will reduce the unit cost and encourage the implementation 5G. As demand for 5G services improves, it will see a rise in the sale of equipment as well as implementation infrastructure such as application development. As a result, Chinese operators have already announced plans to invest in 5G network deployment from 2019. Chinese telecom operators have also seen an increase in 5G innovation centers. As per the timeline above, China was already in its third phase of testing in 2018 both on off the field. In fact, EY expects China's 5G capex will amount to RMB1.5 trillion (\$223 billion) between 2019 and 2025.²⁵⁰² China is all set to benefit from the first movers' advantage. It can expect to gain substantial paybacks from its advanced digital capabilities and higher levels of investment. As per a PwC report," they (economies with first mover's advantage) are far more likely to be forecasting both revenue gains of more than 30% and cost reduction of more than 30% at the same time. They're more likely to expect efficiency gains too."²⁵⁰³

2498 The National Development and Reform Commission of the People's Republic of China is an agency under the Chinese State Council which looks after the macroeconomic management of the State. It also has administrative and planning control over the Chinese economy.

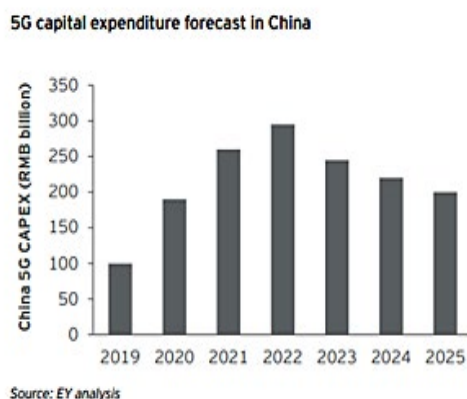
2499 The Ministry of Science and Technology of the People's Republic of China is the central government ministry which coordinates science and technology activities in the country.

2500 IMT-2020 (5G) Promotion Group <<http://www.imt-2020.org.cn/en>>.

2501 EY, 'China is poised to win the 5G Race: key steps extending global leadership' (2018), available at: <[https://www.ey.com/Publication/vwLUAssets/ey-china-is-poised-to-win-the-5g-race-en/\\$FILE/ey-china-is-poised-to-win-the-5g-race-en.pdf](https://www.ey.com/Publication/vwLUAssets/ey-china-is-poised-to-win-the-5g-race-en/$FILE/ey-china-is-poised-to-win-the-5g-race-en.pdf)>.

2502 ibid 8.

2503 PWC, 'Industry 4.0: Building the digital enterprise' (2016), available at: <<https://www.pwc.com/gx/en/industries/indus->

Picture 10.6: 5G capital expenditure forecast in China²⁵⁰⁴

China's key to drive a fully functional 5G technology is that it is also focusing on the adoption of the 5G compatible terminal devices. To fully utilize the many benefits of 5G, devices with supporting technology are required. While the fully compatible 5G devices can only be produced in abundance once the 5G standards are out, China is fixing the deals with chipmakers so as to roll-out the devices in 2019.²⁵⁰⁵

While China anticipates more than 1.7 billion public M2M (machine-to-machine) connections by 2020,²⁵⁰⁶ it aims to be among the first leaders and launchers of 5G and its applications. The telecom policies of China, the government's initiatives focus on building terminal devices, setting up innovation centers and R&D wings for 5G, and its contributions to the development of standards will definitely make China one of the leading nations of 5G development not only among BRICS countries but globally.

10.2.1.3. Russia

Like India and China, Russia strives to become an IoT smart nation. According to the economic and social policy of the Russian government, industrial IoT is considered as one of the "end-to-end technologies" necessary for the digital transformation of economy and society.²⁵⁰⁷ The World Bank's Russia Digital Economy Report emphasizes a sufficiently high level of digital infrastructure in Russia, which should be used "to introduce emerg-

[tries-4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016.pdf](https://www.ey.com/Publication/vwLUAssets/ey-china-is-poised-to-win-the-5g-race-en/$FILE/ey-china-is-poised-to-win-the-5g-race-en.pdf)

2504 EY, 'China is poised to win the 5G Race: key steps extending global leadership' (2018), available at: <[https://www.ey.com/Publication/vwLUAssets/ey-china-is-poised-to-win-the-5g-race-en/\\$FILE/ey-china-is-poised-to-win-the-5g-race-en.pdf](https://www.ey.com/Publication/vwLUAssets/ey-china-is-poised-to-win-the-5g-race-en/$FILE/ey-china-is-poised-to-win-the-5g-race-en.pdf)>.

2505 Ibid

2506 Ibid, 24.

2507 A list of the "end-to-end technologies" was first set out in the programme "Digital Economy of the Russian Federation" approved by the Government of the Russian Federation Resolution No. 1632-r dated July 28, 2017. The list includes, in addition to industrial IoT, other technologies: big data, neurotechnology and artificial intelligence, distributed register-based technologies, quantum technologies, new production technologies, robotics components and sensorics, wireless technology, virtual and augmented reality technologies. In 2019 the programme "Digital Economy of the Russian Federation" was replaced by the National Programme "Digital Economy of the Russian Federation", which applies the same concept of "end-to-end technologies".

ing technologies, including the IoT”.²⁵⁰⁸ The report observes that an advanced digital infrastructure, which is already in place in Russia, should be used, *inter alia*, to deploy 5G mobile networks and to introduce emerging technologies, including the IoT.²⁵⁰⁹

The National Programme “Digital Economy of the Russian Federation” for 2018 – 2024 (National Programme) defines several measures related to the IoT, such as infrastructure development, improvement of standardization mechanisms, as well as promotion of the development and implementation of “end-to-end technologies”. Thus, the Federal Project “Information Infrastructure” forming a part of the National Programme provides for the adoption of the policy framework for the construction of narrow-band wireless IoT networks and 5G networks deployment. The regulator is expected to select the frequency bands suitable for 5G by the end of 2019. By 2020 the relevant public authority should approve the action plan for releasing frequencies for 5G. Moreover, 5G pilot projects in five different industries shall be completed in 2020.²⁵¹⁰

In recent years, the major national telecom operators have initiated a number of 5G mobile network development projects.²⁵¹¹ However, the successful countrywide 5G implementation requires strategic planning and active participation of the state. The National Programme is aimed at creating the regulatory framework and supporting system to accelerate the development of 5G technologies and new 5G-based services. GSMA forecast for 5G adoption in Russia suggests that the first commercial deployments will take place in 2020, and the total 5G base will reach 46 million with the population coverage of 60% by 2025.²⁵¹²

In the view of the importance of standardization for digital economy, Russia has already modernized its standardization system and strives to take a more active role in international standards development.²⁵¹³ In 2017, the Federal Agency for Technical Regulation and Metrology (Rosstandart) established a special Technical Committee No. 194 “Cyber-Physical Systems” to develop national standards and to ensure the involvement of Russian experts in the international standardization activities. In 2019, Rosstandart adopted the first national standard for IoT,²⁵¹⁴ and the Technical Committee opened a procedure for public consultation of two draft standards. Russia is working on the adaptation of

2508 World Bank, ‘Russia Digital Economy Report. Competing in the Digital Age: Policy Implications for the Russian Federation’ (September 2018), p.5.

2509 Ibid 6.

2510 Passport of the national program “Digital Economy of the Russian Federation”. Approved by the Bureau of the President’s Council on strategic development and national projects (Minutes № 16 of December 24, 2018). Para.1.28. – 1.30.

2511 The most significant 5G trials were conducted during the 2018 FIFA World Cup, where major mobile operators in Russia MTS and MegaFon tested several 5G pilot zones. Early in 2019 Postelecom and Megafon have established a joint venture company to develop 5G network infrastructure; MTS signed an agreement with Ericsson on 5G Russia roadmap for 2019-2022 and a deal with Chinese company Huawei to further develop 5G technology in Russia.

2512 GSMA, ‘5G in Russia: a local and global view on the way forward’ (2019) p.19.

2513 Law No. 162-FZ “About standardization in the Russian Federation” entered into force in July 2016. The law establishes the legal framework of developing and setting out national standards.

2514 PNST 354-2019 Information technology. Internet of things. Wireless data transmission protocol based on narrowband modulation.

international standards for IoT and on the harmonization of the existing national standards with the international standards.²⁵¹⁵

The development of industrial IoT has been particularly successful in Russia. According to a survey, mining and processing industries are the pioneers in deployment of IoT, with high-tech industry still lagging.²⁵¹⁶ The progress in the implementation of IoT in specific industries reflects the structure of the Russian economy as resource based. The respondents interpret the emerging trend as a big opportunity for country's specialization in the global IoT market.²⁵¹⁷

Russia has also made good progress in the development of unmanned vehicles. The state supports the private sector and research institutions in their initiatives in this new area. In 2018, the Government of the Russian Federation issued a regulation that permits testing of driverless cars on regular roads of Moscow and the Republic of Tatarstan.²⁵¹⁸ The testing will be conducted between December 1, 2018 to March 1, 2022 and will involve automated trucks (KamAZ), automated tractors and other agricultural machinery (Avrora LLC), buses and cars (Yandex). There are examples of positive dynamics in the development of smart cities, as well as telemedicine. Numerous projects have been initiated by the government or have been carried out through public-private partnership model.

To summarize, the government in Russia plays a key role in regulating and supporting digital technologies, including the IoT. The choice of a centralized model seems justified largely due to institutional and territorial specificity, as well as country's political history. On the other hand, the study published by United Nations Development Programme in 2018 shows that the policy framework for the digital economy varies significantly and provides examples of both bottom-up and top-down approaches adopted by the countries with the similar level of economic and social development.²⁵¹⁹ It is worth noting that recent studies have repeatedly emphasized the vital role of the government in strategic

2515 In 2019 ISO/IEC 29161:2016 "Information technology — Data structure — Unique identification for the Internet of Things" was adopted as national standard GOST R ISO / IEC 29161-2019 "Information technology. Data structure. Unique Identification for the Internet of Things". Another four standards for IoT should be adopted by the end of 2020: GOST R "Internet of Things. Reference Architecture" (harmonization with ISO / IEC 30141); GOST R "Internet of Things. Terms and definitions" (harmonization with ISO / IEC 20924); GOST R "Internet of Things. Interoperability of the" Internet of Things "systems. Part 1. Structure" (harmonization with ISO / IEC 21823-1); GOST R "Internet of Things. Interoperability of the Internet of Things". Part X. Semantic interoperability "(harmonization with ISO / IEC 21823-X). For more information about the development of digital technologies standardization in Russia see the site of the Technical Committee No. 194 "Cyber-Physical Systems": <http://tc194.ru/en>

2516 "Digital funnel" of consumption: features and prospects of the Russian IoT market. Center for social projects "Platforma" in cooperation with Schneider Electric. 2019. P.19-20. <<https://www.schneider-electric.com/promo/mw/en/get-Promo/A11883>>.

2517 *ibid.*

2518 Government of the Russian Federation, Decree No. 1415 of November 26, 2018, "On Conducting an Experiment in Testing the Use of Highly Automated Vehicles on Public Roads".

2519 UNDP Global Centre for Public Service Excellence, 'Framing Policies for the Digital Economy. Towards Policy Frameworks in The Asia-Pacific' (2018) p.25. <https://www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/FramingPolicies_DigitalEconomy_2018_NUS-UNDP.pdf>.

planning and coordination of digital transformation. Thus, the final synthesis report “Going Digital: Shaping Policies, Improving Lives”, closing the two-year Going Digital Project conducted by OECD, points out the responsibility of the state for the development of comprehensive digital transformation strategy and the effective co-ordination among all stakeholders.²⁵²⁰ According to the report of PwC Russia: “the government must play a vital part in this process, as it has the capacity to improve the regulatory framework, develop IoT support devices, create a stimulating environment to develop human capital and promote Russian best practices abroad. By taking a systems approach, the Internet of Things could become an economic game changer for Russia in the long term.”²⁵²¹ Although Russia implements the top-down approach, the government seeks to minimize the risks of overregulation by encouraging business participation in lawmaking and developing a more flexible regulatory policy in the field of IoT and other digital technologies.

10.2.1.4. Brazil

Brazil is a BRICS nation that is growing at par with developed nations as far as the IoT and 5G are concerned. The Brazilian government has outlined the main obstacles to develop the IoT ecosystem and is now working on the implementation of this new technology.²⁵²² The government is also actively working on the implementation of 5G technology. Meanwhile, new R&D centers have already been installed to develop these technologies further. IBM started an open innovation platform to develop further research in the field of agriculture called IBM AgriTech.²⁵²³

The Brazilian government has recently presented a technical, participatory and multisectoral study,²⁵²⁴ outlining the local technological and economic challenges, as well as how to address legal issues inherent to the development of IoT in Brazil. It aimed to contribute to the development of a strategic action plan, called the National Plan for the Internet of Things.

The study divided the legal analysis into two main stages. First, it evaluated horizontal regulatory issues that affect any sector that benefits from the implementation of IoT. In this step, the study identified a need to reconsider certain aspects of Brazilian legislation and reorganize institutional arrangements.

2520 OECD, ‘Going Digital: Shaping Policies, Improving Lives – Summary’ (2019), OECD, Paris, available at: <www.oecd.org/going-digital/going-digital-synthesis-summary.pdf>.

2521 PWC, ‘Internet of Things: Future technology available today’ (2017), available at: <https://www.pwc.ru/ru/publications/IoT_English_version.pdf>.

2522 ‘Internet of Things: An Action Plan for Brazil’ (funag.gov, November 2017) available at: <http://www.funag.gov.br/images/2017/Novembro/Dialogos/Claudio_Leal-Internet-of-Things.pdf>.

2523 Rens Koele and Petra Smits, ‘IoT and Networking Technology in Brazil: Innovation in Agriculture, opportunities in Health and Industry’ (2018) Netherlands Enterprise Agency, available at: <<https://www.rvo.nl/sites/default/files/2018/05/iot-and-networking-technology-in-brazil.pdf>>.

2524 For more information about the study, and to access its full version, please see: <<https://www.bndes.gov.br/wps/portal/site/home/conhecimento/pesquisaedados/estudos/estudo-internet-das-coisas-iot/estudo-internet-das-coisas-um-plano-de-acao-para-o-brasil>>

Among others, the study considered that the following challenges should be addressed: (i) possible changes in telecommunications regulation; (ii) the establishment of rules and institutions to deal with information security challenges; (iii) the creation of legislation for the protection of personal data by private initiative and the government, as well as (iv) taxation matters and other issues related to import and customs clearance. In the second stage, an in-depth study was carried out considering specific sectors that would greatly benefit from the implementation of IoT. The core verticals of the study were Smart Cities, Healthcare, and AgriTech.

After the study presentation, the Ministry of Science, Technology, Innovation, and Communication (MCTIC),²⁵²⁵ and the Brazilian Development Bank (BNDES)²⁵²⁶ announced a set of initiatives to develop and accelerate the adoption of IoT in the country. In order to stimulate business and attract investments based on technologies related to IoT, as well as to introduce some incentives, Brazilian Government is preparing a Decree to implement the National Plan for the Internet of Things. The expectation is that the Government will enact this Decree shortly. The plan will define which actions should be taken to create a sustainable IoT ecosystem. The government focuses on promoting innovation, developing human capital, defining regulation, and improving connectivity. It is expected that by 2025, Brazil could contribute \$4-11 trillion to the global economy.

In order to create a thriving ecosystem for IoT services to develop seamlessly, Brazil engaged possible stakeholders, which included IoT chambers, technical partners, leadership teams, funding agencies. Along with written inputs from public and private sectors, Brazil carried out thematic workshops that engaged specialists and stakeholders to have a better understanding of all kinds of requirements. Since the publishing of the study, BNDES has launched several bids aimed at supporting projects consistent in the implementation of IoT in the prioritized sectors, especially Smart Cities and AgriTech, and in the Industry.

On the other hand, the development of 5G in Brazil started in February 2017, when representatives of the industry, government, and research institutions gathered to launch the initiative “Projeto 5G Brasil”.²⁵²⁷ The project aims at building an ecosystem to drive 5G forward in Brazil. This initiative empowered Brazil to contribute and participate in international discussions and become part of decision-makers that will set standards for 5G. The nation expects to make use of the 5G network to implement IoT as a sustainable tool for its society so that that it enhances the quality of life of Brazilians and economy is strengthened.

2525 The Ministry of Science, Technology, Innovation and Communication of Brazil is the civilian cabinet organization which coordinates science, technology, and innovation activities in the country

2526 The Brazilian Development Bank (BNDES) is the main financing agent for development in Brazil founded in 1952.

2527 To see more about “Projeto 5G Brasil”, please see: <<http://5gbrasil.telebrasil.org.br/>>.

Recently, the National Telecommunications Agency (ANATEL) defined the radiofrequency in which the 5G technology will be rolled out (2.3GHz,²⁵²⁸ and 3.5GHz²⁵²⁹).²⁵³⁰ The expectation is that the bidding for these radiofrequencies will occur until March 2020. It is evident that Brazil has embraced 5G and IoT with open arms and is all geared up to implement it in the day-to-day life of Brazilian citizens.

10.2.1.5. South Africa

The IoT will become the medium to bring in inventive solutions to meet the socio-economic challenges in South Africa. It is expected to transform businesses to enable better growth and increased revenue in South Africa. Smart City solutions, such as using the IoT to curb the problem of scarcity of water in informal settlements to intelligent transport solutions, are increasingly being studied to find solutions for better urbanization. In agriculture, companies have deployed IoT devices to analyze weather patterns. To make the expected change a reality, regulatory authorities, mobile operators and other stakeholders will need to collaborate to work together towards a common goal.

In South Africa, water scarcity has become a serious concern. It has become a critical resource, and this is apparent from the recent severe water shortages that were experienced by the City of Cape Town. Thus, the use case of monitoring of the water collection at the storage units and the detection of water leaks in the supply pipeline network through smart sensor networks and smart metering has become a critical 5G and IoT use case in the urban settlements of South Africa. The population of South Africa has grown from 37.8 million to 55 million between 1993 and 2016 and in that time, household numbers increased exponentially.²⁵³¹ In this case, Smart water meters are the best IoT solution that can resolve the water scarcity problem.

Policy and regulatory holdups that restrain operators and potential stakeholders from actively and keenly responding to the changing nature of communication require policy and regulatory consideration. South Africa needs to make policy changes and create a conducive environment to attract long-term investment and IoT business to flourish. However, the South African National Integrated ICT Policy Whitepaper published in 2016 has identified three major challenges that can result in slow network rollout in South Africa.²⁵³² They are:

2528 Anatel's regulation for 2.3 GHz radiofrequency can be seen: <https://sei.anatel.gov.br/sei/modulos/pesquisa/md_pesq_documento_consulta_externa.php?eEP-wqk1skrd8hSlk5Z3rN4EVg9uLjqrLYJw_9INcO7DJ9WCixRwgICrwOIVnuVfsThFdWW-I_CHL4OiZ_Qmp4J0NboOw5gmi8wDxqZWaLW5rxp3ly8CUmouteUoWxej>

2529 Anatel's regulation for 3.5 GHz radiofrequency can be seen: <https://sei.anatel.gov.br/sei/modulos/pesquisa/md_pesq_documento_consulta_externa.php?eEP-wqk1skrd8hSlk5Z3rN4EVg9uLjqrLYJw_9INcO67HDZ-7d1LUfLp4CpC5Sfjq-MxDm2BS2Buyb-GNebRRjOA6CkZVUaLBltCMGAjYJP-TTXaUXa-RgMvonsBg2u1>

2530 Anatel decided about the radiofrequency usage in a meeting occurred on May 23rd, 2019. For more information: <http://www.anatel.gov.br/institucional/ultimas-noticiass/2278-aprovada-destinacao-de-faixas-de-frequencias-de-2-3-ghz-e-3-5-ghz>

2531 'Making 5G a reality for Africa: A CSIR & Ericsson Collaboration' (Ericsson, 2018) <<https://www.ericsson.com/assets/local/press-releases/africa/2018/5g-africa-report-11-2018.pdf>>.

2532 Department of Telecommunications & Postal Services, Republic of South Africa, National Integrated ICT Policy (White

- **An ineffective regulatory regime:** An instance of ineffective regulatory regime as cited in the South African National Integrated ICT Policy Whitepaper is that the Electronics Communication Act is rigid in nature as far as market reviews are concerned. Moreover, the competition enquiries are not properly conducted which leads to ineffective regulations.
- **A concentrated broadband infrastructure market:** Again, the problem as identified is a lack of IT infrastructure in underdeveloped areas, high cost of communication and inefficient use of the frequency spectrum lead to a compromise for both innovation and quality of service.
- **High prices for communication:** The replication of infrastructure and commercially driven plans lead to expensive infrastructure deployment, the costs of which are borne by the ultimate consumer. Moreover, the inadequate number of service providers are not able to regulate the retail prices.

Unless these problems are eradicated, the digital divide will widen in South Africa, its ability to meet its broadband targets will be undermined and the country may miss the opportunity provided by broadband to improve its economy.

10.2.2. Areas in which IoT and Industry 5.0 are deployed

By now it is clear that IoT and Industry 4.0 have its implications in every walk of life. With the rolling out of 5G in the near future, the vision of smart cities seems to be a possibility. 5G has enough potential and characteristics to make smart cities a reality. It is only through 5G, millions of devices can be connected at the same time where they can communicate with each other as well as over the network with high speed.

It is the realization of smart cities that IoT can lead to an industrial revolution. With smart cities, devices will be deployed at a revolutionary scale. Few of the unlimited use cases of IoT are in the domains of education, health, security, defense, traffic management, city cleaning, automobile, home safety, geo tracking, weather forecasting, smart meters, asset tracking, inventory management and geo fencing.

These are only a few of many use cases of IIoT. The versatility of applicability is evident from the possible deployments mentioned above. It is important to note that IoT use cases will continue to expand in the coming years.

10.2.2.1. Terminal devices

It is obvious from the above sections that 5G will give a boost to IoT technology which, in turn, will lead to the IIoT. All of it will require terminal devices that are capable of hosting this new technology. Connected devices are part of a system where all devices are capable of talking to other related devices as well as communicate relevant data released

Paper, 28 September 2016) <https://www.dtps.gov.za/images/phocagallery/Popular_Topic_Pictures/National_Integrated_ICT_Policy_White.pdf>.

by sensors to users, businesses and other interested parties over network.

The terminal IoT devices can be categorized as consumer, enterprise, and industrial. Consumer IoT devices include smart TVs, smart speakers, wearables and other smart equipment whereas smart meters, commercially deployed security systems and smart city technologies -- such as traffic monitors and weather forecast devices -- are examples of industrial and enterprise IoT devices. Other technologies, including smart air-conditioning, smart thermostats, smart lighting, and smart security have enterprise and industrial uses.

The terminal devices are not just limited to mobile phones; they can be intelligent machines, drones, robots, intelligent devices like smart meters, smart bins, smart traffic lights, and the list goes on. The adaptability and versatility of the use cases of Industry IoT is such that the terminal devices can range from something as simple as a trash bin to a high-end car.

10.2.2.2. Communication Infrastructure

The IIoT infrastructure is different from infrastructure for the enterprise or consumer IoT. IIoT is the amalgamation of information technology (IT) and operational technology (OT).²⁵³³ Some important infrastructure requirements can be categorized as follows:

- **Network Requirements:** network requirements can vary based on the application. They could range from being very basic to extremely demanding. Some applications require low latency and high throughput whereas others can afford low power consumption and high latency. The system should be capable of adjusting with the varying demands.
- **Backward Compatibility:** all new technologies are expected to be compatible with the already existing legacy technologies. This is important because old technology should not become obsolete till the time the new one is completely adopted.
- **End-to-End-Connectivity:** an IoT system is complex architecture of sensors, end user device, a control plane, and a data plane. All these components need to be connected from one end to the other via gateways for a seamless service to be deployed.
- **Interoperability:** as mentioned above, an IoT system consists of multiple components and each component is supplied by multiple vendors. For this reason, it is important to have interoperable communication so as similar components from all vendors can interact without any hiccup.
- **Standards:** for interoperability to be in place, there is an absolute need of well-defined standards. The protocol, technologies and the physical components should be standardized for maximum interoperability.

²⁵³³ Operational technology (OT) is hardware and software that detects or causes a change through the direct monitoring and/or control of physical devices, processes and events in the enterprise.

- **Spectrum requirements:** for wireless communications, the regulatory mechanisms for licensed and unlicensed spectrum should be taken into consideration.
- **Power:** availability and consumption of power is a prerequisite for IoT systems to operate.
- **Storage Needs:** the data release from sensors and IoT devices installed needs to be stored for reference and analysis. Since the development is at an industrial level, data produced is expected to be a huge amount. A robust storage infrastructure is required to collect the data produced by IoT devices.

One such storage medium is cloud infrastructure which is discussed in the following section.

10.2.2.3. Cloud Infrastructure

The flexibility of cloud infrastructure is its one of the major advantages. A cloud can be implemented in one of the following three models-

- **SaaS:** Software as a Service is the most widely implemented cloud service model. SaaS employs the internet to provide distributed applications and services, eliminating the need for clients to download any software. With SaaS, a cloud vendor has complete control over applications, data, runtime, middleware, operating systems, services, storage, networking, and virtualization.
- **PaaS:** Platform as a Service offers a platform to create software. With PaaS, the cloud vendor assumes a majority of the service, including runtime, middleware, operating systems, servers, storage, networking, and virtualization. The client only needs to take care of the applications and data.
- **IaaS:** Infrastructure as a Service offers an extensively automated and scalable service to clients. Clients are allowed to buy resources as required without relying on in-house hardware. With IaaS, the cloud services like applications, data, runtime, middleware, and operating systems managed by a company, including but the cloud vendor is responsible for the storage and virtualization.

There are several advantages of installing a cloud infrastructure as a storage medium. Some of the advantages are discussed below:

- **Economic Alternative for Storage:** the installation of cloud infrastructure significantly reduces the operating cost of a company installing and managing a data center. With cloud infrastructure, a company just needs to pay for its usage as a pay-as-you-go service.
- **Agility and Flexibility:** most cloud service infrastructure is installed as independent modules and self-managed services. With a cloud infrastructure managing processes, a user becomes more business-oriented than IT-focused.

- **Security:** Cloud infrastructure technologies and providers are always refining protection against viruses and other data breaches with advanced encryption keys and a hybrid approach which stores sensitive data in a private cloud and other general data in a public cloud.

10.3. Estimating the future IoT and 5G patent landscape

10.3.1. IoT standards and patent landscape

IoT standards cover many different layers and are developed by numerous Standard-Setting Organisations (SSO). A study by Al-Fuqaha and others identifies a number of IoT layers each with a unique standards and applications, as shown in Table 1 below.

Table 10.1: overview of IoT layers, standards and applications²⁵³⁴

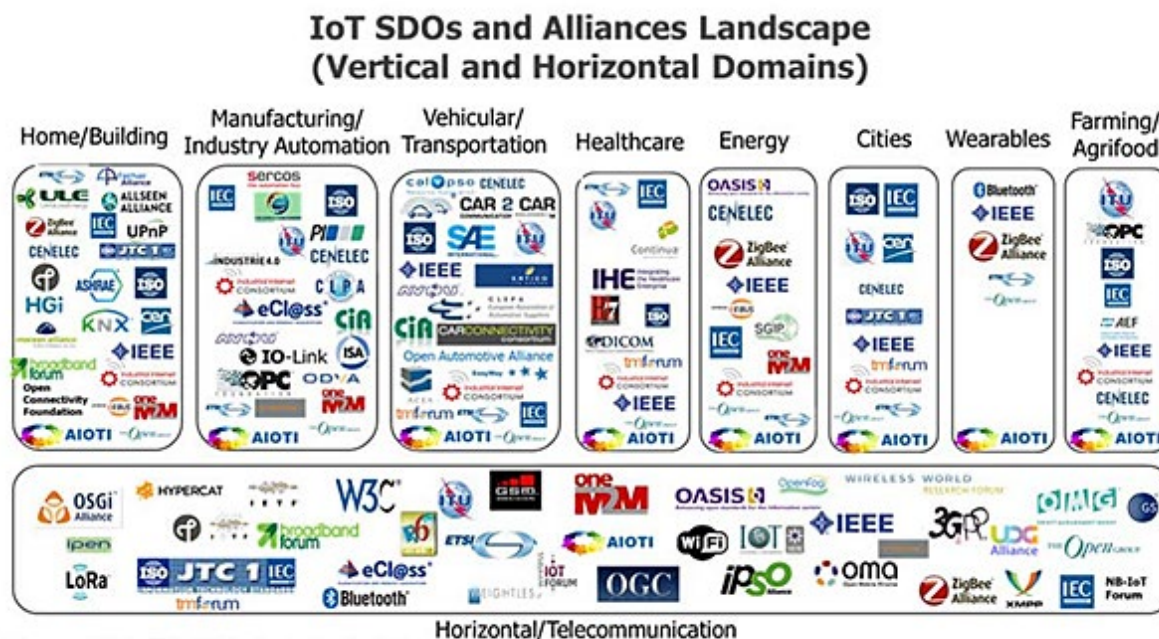
IoT Elements		Samples
Identification	Naming	EPC, uCode
	Addressing	IPv4, IPv6
Sensing		Smart Sensors, Wearable sensing devices, Embedded sensors, Actuators, RFID tag
Communication		RFID, NFC, UWB, Bluetooth, BLE, IEEE 802.15.4, Z-Wave, WiFi, WiFiDirect, , LTE-A
Computation	Hardware	SmartThings, Arduino, Phidgets, Intel Galileo, Raspberry Pi, Gadgeteer, BeagleBone, Cubieboard, Smart Phones
	Software	OS (Contiki, TinyOS, LiteOS, Riot OS, Android); Cloud (Nimbits, Hadoop, etc.)
Service		Identity-related (shipping), Information Aggregation (smart grid), Collaborative-Aware (smart home), Ubiquitous (smart city)
Semantic		RDF, OWL, EXI

Indeed, numerous SSOs are developing standards for the application in the IoT ecosystem. Study by ETSI shows large international formal SSOs such as ISO, ITU-T, IEC, ETSI, CEN-CENELEC; quasi-formals SSOs such as IEEE, W3C as well as numerous smaller consortia present in the IoT standardisation system.²⁵³⁵ Picture 7 below illustrates the involvement of SSOs in different areas where IoT technologies will be used.

²⁵³⁴ Taken from Ala Al-Fuqaha, Mohsen Guizani, Mehdi Mohammadi, Mohammed Aledhari, Moussa Ayyashi, 'Internet of Things: A Survey on Enabling Technologies, Protocols and Applications' (2015) 17(4) IEEE Communications 2347.

²⁵³⁵ ETSI, 'IoT Standards Landscape and Future Evolutions' (2016) Technical Report 103 375 V1.1.1. For classification of SSOs and their governance see: Justus Baron, Jorge Contreras, Martin Husovec, Pierre Larouche, 'Making the Rules: the Governance of Standard-Development Organisations and their Policies on Intellectual Property Rights' (2019) JRC Science for Policy Report, EUR 29655 EN.

Picture 10.7.: Overview of Standard-Setting Organisation and their standardisation activities in the IoT²⁵³⁶



Source: AIOTI WG3 (IoT Standardisation) – Release 2.6

Standards are often covered by patented technologies and the information about their owners can be obtained by looking at patent applications filed at patent offices. Precisely such a study was done by the European Patent Office (EPO) which measured the number of patent applications in areas related to the IoT sector. The EPO classified IoT inventions into three main sectors, Core technologies, Enabling technologies and Application domains.²⁵³⁷ Each main technological sector is further broken down into smaller technology fields such as Hardware, Software and Connectivity (as Core Technologies) that enable the connection of objects to the internet; Analytics, Security, AI, 3D Systems, User Interface (as Enabling Technologies) are used in combination with connected objects and Home, Personal, Enterprise, Manufacturing, Infrastructure and Vehicles (as Application domains) where a connected object can be used.²⁵³⁸ EPO found that applications for patents in the IoT field are increasing, the growth rate was 54%, far outpacing the overall growth rate of other patent applications of 7.65%.²⁵³⁹ More than 5,000 patent applications for inventions related to autonomous objects were filed in 2016 alone.²⁵⁴⁰ As to the largest patent holders, a study by EPO shows that the field is dominated by the large European, American and Japanese companies, but with Korean and Chinese companies increasingly innovating and filing for patent applications. The largest individual patent applicants are, in fact, two Korean companies (Samsung and LG). The table below provides information on the largest patent applicants at EPO in the IoT field.

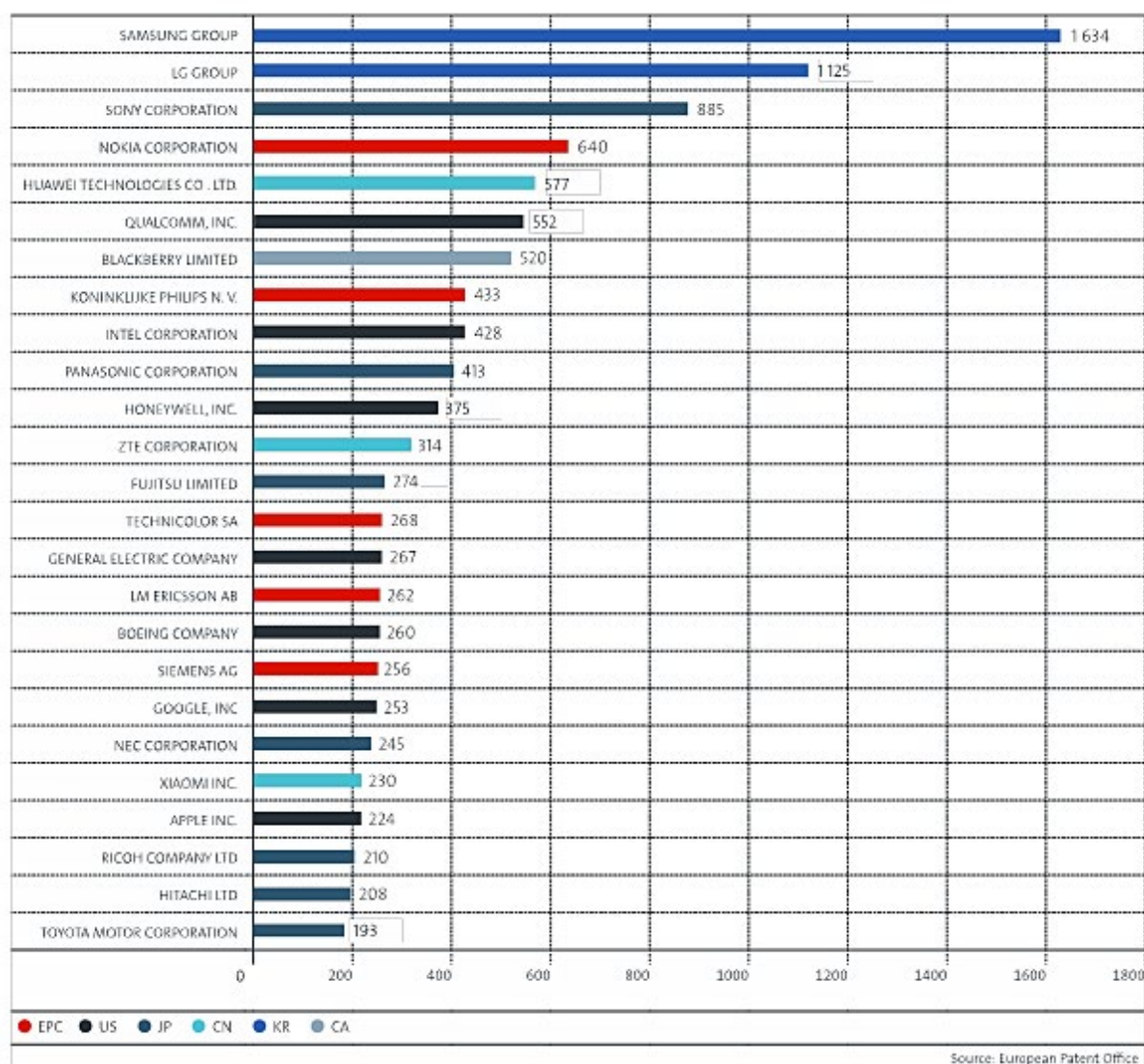
2536 ETSI, 'IoT Standards Landscape and Future Evolutions' (2016) Technical Report 103 375 V1.1.1, p. 14.

2537 European Patent Office, 'Patents and the Fourth Industrial Revolution' (2017) p. 10.

2538 Ibid.

2539 Ibid, p.11.

2540 Ibid.

Table 10.2.: top EPO patent applicants in the IoT field from 2011-2016²⁵⁴¹

10.3.2. 5G patent landscape

The internet connectivity in the IoT is expected to be brought about by the incoming 5G standard. The 5G communication standard is anticipated to be 100 times faster than the existing 4G LTE standard, with faster data rates and extremely low end-to-end latency.²⁵⁴² It will enable machines to directly communicate between each other and will be used across IoT application in various industry sectors. 5G economy will see cellular coverage extending into a broader range of structures such as office buildings, industrial parks, shopping malls, but also in domestic appliances, cars and machines. With improved capacity to handle significantly greater number of devices using high volumes of data, 5G will be a key enabler of IoT connectivity.²⁵⁴³

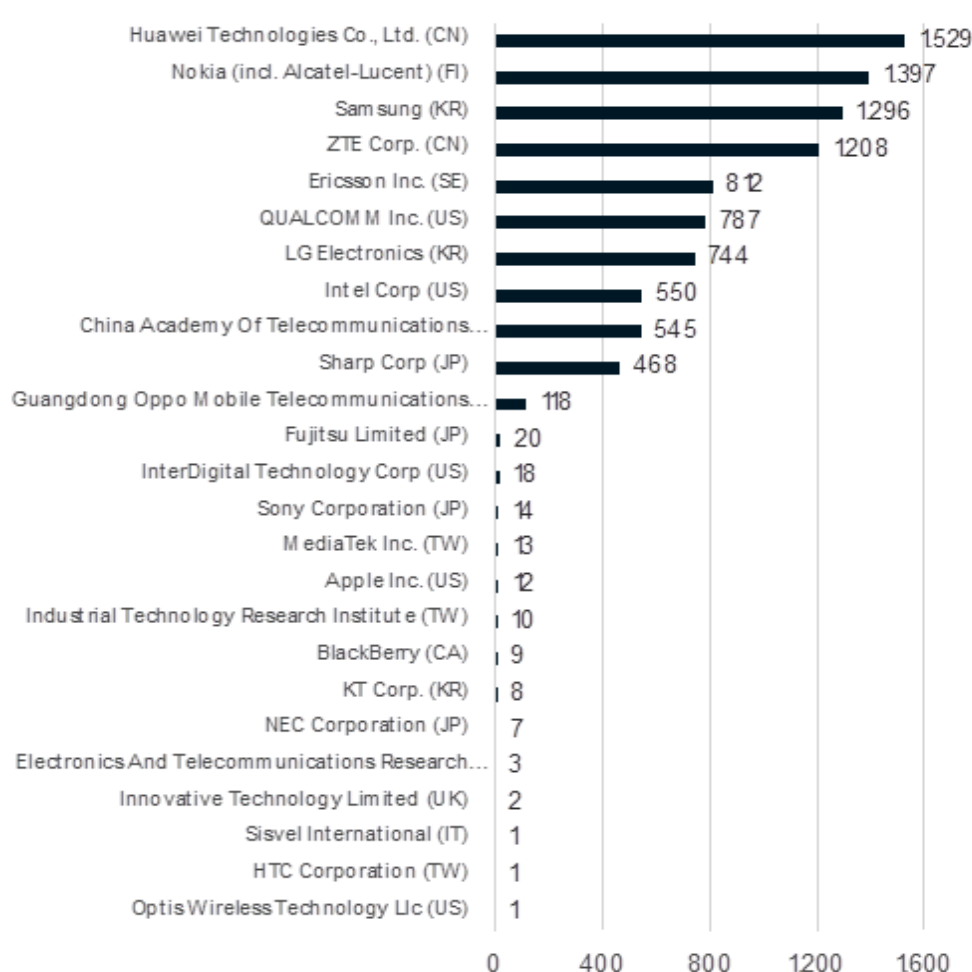
²⁵⁴¹ Taken from: European Patent Office, 'Patents and the Fourth Industrial Revolution' (2017) p. 12.

²⁵⁴² 5GPPP, '5G Innovations for New Business Opportunities', March 2017.

²⁵⁴³ For more information on the benefits of 5G see: IHS Economics and IHS Technology, 'The 5G Economy: How 5G Tech-

Like other standards, 5G is covered by patents. A study by IPLytics provides an overview of the patent landscape for 5G, which is dominated by Asian firms; in contrast to 2G, 3G and 4G standards where SEPs were mainly in the hands of large European and US companies. According to IPLytics, the largest 5G patent owner is Huawei, with Samsung and ZTE also in the top five. European companies Nokia and Ericsson also have a strong patent portfolio, while US company Qualcomm is at a sixth place, behind Asian and European firms. Table 3 below illustrates 5G patent ownership as of February 2019.

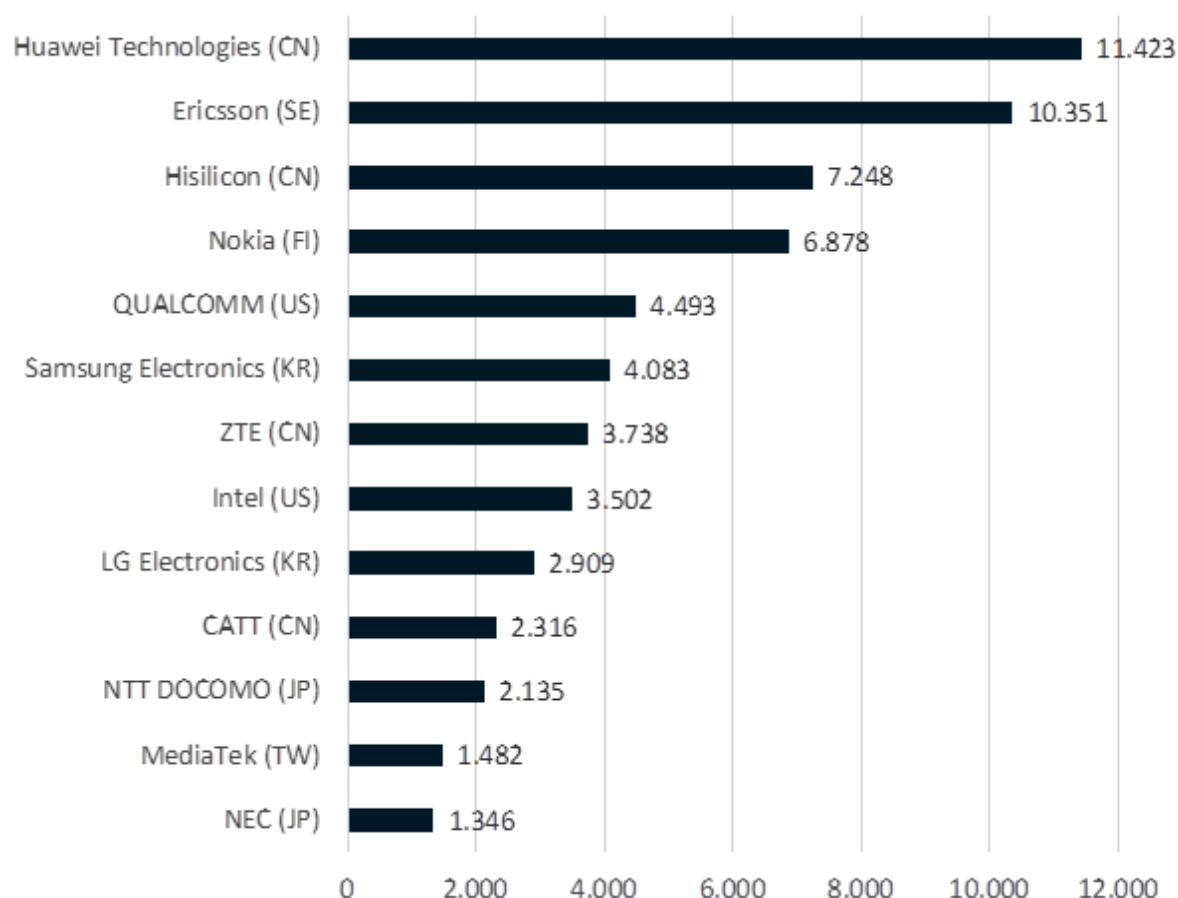
Table 10.3.: 5G patent owners²⁵⁴⁴



Measuring patent ownership is not the only way to assess one company's impact on standard's development. Another way is to look at technical contributions submitted by each company at standardisation meetings. Again, data from IPLytics show that Huawei is the most active contributor of technologies in 5G standards. Table below shows the top companies that made technical contributions to 5G technology.

nology Will Contribute to the Global Economy' (January 2017).

2544 Taken from: IPLytics, 'Who is Leading the 5G Patent Race?' (February 2019), p. 3.

Table 10.4.: 5G Standard Contributions per Company²⁵⁴⁵

10.4. What types of standards are to the greatest extent covered by patents?

Products today need to interoperate with their ‘ecosystem’ to a much greater degree than before. In fact, a product’s degree of compatibility with a system is of significant importance when the general consumer makes his or her decision whether to purchase that product or not. To achieve compatibility firms need agree on the interfaces between products so that the essential parts of a product may interoperate with its surrounding. Several definitions of standards are given in the literature, by standard-setting organizations and political institutions.

ISO/IEC Guide 2:1996, definition 3.2 defines a standard as:²⁵⁴⁶

‘A document established by consensus and approved by a recognized body that provides for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context’.

²⁵⁴⁵ Taken from: IPLytics, ‘Who is Leading the 5G Patent Race?’ (February 2019), p. 5.

²⁵⁴⁶ ISO/IEC Guide 2:2004, Standardization and related activities -- General vocabulary, <https://www.iso.org/standard/39976.html>

Given the above, the definition of a standard is wide, including not only interoperability standards, but also, for example, product, service, safety and environmental standards. It seems actually that a standard at its widest definition could plainly be described as *a structure for a solution to a demand*. Naturally, standards may be divided into different groups. They are given different names depending who is discussing standards. The ISO classification of standards may be divided into eight groups:²⁵⁴⁷

- (i) **Basic standard** has a broad ranging effect in a particular field. (These standards could be called and regarded as infrastructure standards.)
- (ii) **Terminology standards** define words permitting representatives of an industry to understand and communicate.
- (iii) **Testing standards** define the test methods to be used to assess the performance or other characteristics of a product.
- (iv) **Product standards** establish qualities or requirements for a product (or related group of products) to assure that it will serve its purpose effectively.
- (v) **Process standards** specify requirements to be met by a process, such as an assembly line's operation, in order to function effectively.
- (vi) **Service standards**, such as for servicing or repairing a car, establish requirements to be set in order to achieve the designated purpose effectively.
- (vii) **Interface/interoperability** standards, such as the point of connection between a telephone and a computer terminal, are concerned with the compatibility of products.
- (viii) **Standard on data**. The last type provides a listing of characteristics for value of data specifying a product, service, data-set etc.

In addition to the above product and service standards, but also other forms of standard such as interoperability standards, may be divided into performance (also called general uniformity or non-product standard) and design standards (also called prescriptive or product standards). A performance standard implies that the standard only stipulates certain performance that the product or service should meet to fulfil the standard, while a product or design standard stipulates specific requirements for the goods.

From a competition law perspective, it is of fundamental importance to grasp what sort of standard is up for scrutiny. Under antitrust law, several types of standards should be acknowledged as well as their different implications for markets and competition. Interoperability or interface standards, which guarantee that products made by different firms can interoperate, should be distinguished from general uniformity standards (sometimes called performance or non-product standards). Similarly, general uniformity standards (performance standards), which set minimum requirements for all products on a market, should be distinguished from design standards.²⁵⁴⁸

2547 See Liguozhang, Standardization and Patent Licensing in the European Union (Oy Nord Print Ab 2012), 26, with references.

2548 For a somewhat similar division, see Gregory Tasse, 'Standardization in Technology-Based Markets', (2000) 29 Research

Performance standards/general uniformity standards are often set by SSO connected to trade organizations, while interoperability or design standards are more specific and may, in combination with relevant intellectual property rights, restrict competition and product diversity. Actually, a design or prescriptive or, in other words, technical requirement standard regarding the parts, content or form of a product or technical solution, such as cement, tyres or even technologies for storing music or film (e.g. Memory stick, VHS, CD-rom or DVD technology) is a fundamentally different standard from an interoperability standard, which, in turn, *de facto* may reflect an infrastructure standard. Design or product standards may reflect a standard for one solution on a market that may efficiently harbour several different such standards or technologies.

Basic or infrastructure standards may have significant implications for an industry. They constitute the fundamentals for where trade will take place and several of the interoperability standards developed today are the infrastructure of the present and the future. Presumably, examples of such standards are the different generations of telecommunications network technologies.

Likewise, a design standard is, from a competition law perspective, different from a general uniformity or performance standard, where the standard only stipulates certain requirements for the product to fulfil to be able to meet the standard. A general performance standard, for example certain environmental or safety standards, may represent a competition law problem less often since it seldom implies that certain products or firms will be excluded from the relevant market or technology. Such standards only stipulate certain requirements for the performance of the product, e.g. what kind of heat a product should withstand or what degree of emission a product may give off, and, thus, give the manufactures the liberty to compete through innovation over how to fulfil these requirements.

It seems that the notion of interoperability is also used now for standards that were previously considered infrastructure standards. For example, standards for the railway system (e.g. for the gauge, couplings, brakes, and signalling), and standards for public safety (e.g. firefighting material), or for the armed forces, are today considered to be interoperability standards, while previously they were considered basic infrastructure standards.

Clearly interoperability standards refer to the ability of different (technical) units to combine, but it may today also be used in reference to organizations. Nonetheless, internet or telecom interoperability, the technology of the internet or the telecom technology of UNMTS or 3G must be treated differently in reference to interoperability and/or infrastructure standards from prescriptive or design standards.²⁵⁴⁹ Prescriptive design stan-

Policy 587, 589 et seq.

2549 Furthermore, interoperability means different things also within IT and telecoms. According to ISO/IEC 2382-01, Information Technology Vocabulary, Fundamental Terms, interoperability is defined as follows: 'The capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units'. Under telecoms, interoperability is under said ISO standard defined differently: 'The ability of systems, units, or forces to provide services to and accept services from other systems, units or forces and to use the services exchanged to enable them to operate effectively together. The

dards may very well reflect a new product in an existing market with other competitive solutions, while interoperability standards, through for example network (tipping) effects on the market, may very well develop or represent *de facto* virtual infrastructure. The market and industry will only, efficiently, be able to facilitate one such standard, and, while there may be dynamic competition over what it should be in the pre-standardization phase, when the technology is fixed, it will be the infrastructure for other markets to develop.

Notwithstanding these fundamental differences, the standards discussed here are mainly *interoperability* network-driven standards for the telecom sector or ICT sector, being either horizontal or vertical. The horizontal standards for the ICT, Internet or IoT can be of infrastructure type, developed through technical innovations, patent protected and often governed by a standard setting body such as ETSI or IEEE. For example the 5G now being launched is a horizontal standard for transferring mobile data and speech developed under ETSI. Indeed, it is the infrastructure, hardware oriented horizontal technical standards that normally are covered by a thicket of patents.

Vertical standards for the Internet are on top of the horizontal infrastructure type standards, and are today more and more data oriented, where a dominant system leader decide on certain technical standards with thereto connected APIs (open, privileged or private) for interoperability within respective ecosystem. The technology selected is the prerogative of the system leaders and through contracts with non-assertion covenants, the system leaders are often able to immunise the ecosystems from infringement claims based on intellectual property rights.

Other more 'product-oriented' standards, such as standards for different data/music storage solutions are different. Possibly, there are patents covering the data storage or clouds, however, there are few infringement cases. There are also widely used product standards that are in-between, such as AVC/H.264 video code for the internet, and they will also be discussed, while general uninformative or performance standards will not be analysed in this chapter because they, as stated, seldom represent competition law problems.

In other words, one could identify standards and/or technologies, and collaborations connected to them, and divide them loosely into four categories, depending on their anti-competitive effects. This is difficult because standards are in many ways overlapping. Especially, there is an overlap between the notion of infrastructure and interoperability standards. Nonetheless, from a competition law perspective the division helps when analysing their different anti-competitive effects

A	B	C	D
Infrastructure	Interoperability	Data	Device

This division into four groups will be used to explain, classify and discuss standards and

definition can be extended to the condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users'.

their potential anti-competitive effects throughout this chapter. The division is somewhat interlinked to the discussion where competition by substitute, eg platform v. platform may still survive or where network effects and tipping has created a monopoly and a “failed” market is created where only competition by imitation can be upheld. Where the system leader may acquire a special responsibility to uphold competition within the ecosystem (the failed market). The A and B standards are horizontal, ‘one of a kind’ technologies for whole industries, while C and D standards can be vertical or more ecosystem specific. Indeed, they can differ for ecosystem to ecosystem.

10.5. Different layers of standards, Infrastructure or lower layer interoperability, upper layer data interoperability

There is a great need for interoperability so to create the Digital Economy. Basic interoperability, to materialize, needs some joint way of communication, or that one technology is adopted as the technical standard either *de facto* or *de jure* by the industry as a whole. Indeed, for the Digital Economy, IoT standards in general and functional IP rules/guidelines under these standards in particular seem to be desirable. When IoT will happen, devices will communicate with other devices, with the telecom technology, and with the Cloud. Devices and device producers need interoperability otherwise the internet of things may not materialize. We are at the beginning of the development of everything’s interoperability and the need of technical standards to enable this is great.

There is currently a global technical standard race for IoT. Several different SSOs are fighting to become the SSO part of the collaborations that enact the standards for the new IoT era. Moreover, several pre-standard collaborations (consortia) are being formed including several different combinations of important players for the technologies that might be included in the IoT standards. These consortia are like “pacts” conducting lobbying and outright frontal attacks on other formations or pacts, all in the effort of getting their technologies inside the relevant standards.²⁵⁵⁰

Of course, the incumbent SSOs are adapting to the new paradigm, e.g. ETSI, even CEN and CENELEC claim relevance in the IoT paradigm. But there are special IoT SSOs. For example, in 2015, the EU Commission and various IoT players launched a large-scale alliance called AIOTI (Alliance for Internet of Things Innovation) with the aim to assist the European Commission in the innovation and standardization policies.²⁵⁵¹

Whether these collective efforts under SSOs will be relevant in a world where Google (Brillo and Weave), Apple (HomeKit), Samsung (SmartThings), Amazon (Alexa) and Microsoft (Windows 10 IoT editions) are all bringing out their own unilateral IoT solutions is still to be seen. Perhaps, there will be no market for the SSOs and these firms will instead create the *de facto* IoT standards either just for their respective ecosystem (includ-

²⁵⁵⁰ For a analysis of the political and technical interface of standard-setting Bjorn Lundqvist, *Standardization Under EU Competition Rules and US Antitrust Laws – The Rise and Limits of Self-Regulation* (Edward Elgar 2014), 16.

²⁵⁵¹ Jacopo Ciani, ‘A competition law oriented look at the application of data protection and IP law to the Internet of Things: towards a wider holistic approach’, MPI Post Doc Conference paper, Munich (21 October 2016).

ing many vertical dependent firms) just as Google's Android became the de-facto open mobile OS?²⁵⁵²

There are several layers of technical standards, and only a few standards are actually of infrastructure interoperability type. Indeed, at a minimum, one should distinguish standards for the "lower" and the "upper" layer, pointing to a division between infrastructural interoperability and data interoperability. While infrastructural interoperability enables devices to exchange data under common network protocols, data interoperability concerns more directly users and developers of IoT applications within separate ecosystems, allowing them to meaningfully connect mainly their software interfaces of those applications.²⁵⁵³ Indeed, upper layer interoperability is attained by reading and reproducing specific parts of computer programs, called interfaces, which contain the information necessary to "run" programs in a compatible format.²⁵⁵⁴

It is from the perspective of the user/consumer of the computer program, user interfaces are relevant to the extent that they enable him or her to visualize and deploy a specific set of commands or modes of interaction with the program, that can potentially be replicated into another (different) application. Importantly, although this kind of interoperability can increase a program's utility to the user, it is not required for the purpose of its technical functioning. Most choices for user interfaces are indeed dictated not so much by functional elements of the program, as by the pursuit of the goals of user friendliness, aesthetical appeal and promotion of brand-specific features, often inside the ecosystem.²⁵⁵⁵ Moreover, there does not seem to be one way of solving the need for upper level interoperability since communication will be done in several modes. Indeed, it seems that different collaborations, or ecosystems, may provide similar but still different designed data interoperability. Indeed, well-functioning data interoperability within separate ecosystems created network effects inside the ecosystem, while still these systems may compete in between themselves.

In addition, there also seem possible to make a distinction between horizontal and vertical upper level standards. As Kerber and Schweitzer explain, "[p]articularly important is the distinction between horizontal and vertical [semantic] interoperability. Horizontal interoperability denotes the interoperability of competing products, services or platforms. One example is the interconnection between communication networks. Vertical interoperability refers to the interoperability of a product, service or platform with complementary products and services. The degree to which complementary products (e.g., digital goods as music files or e-books) can be shared across different platforms, and complementary products of one platform can be accessed from rival platforms is said to characterize the horizontal openness of a platform. The ability of independent firms to

2552 Terry Hughes, 'A world with more IoT standards bodies than IoT standard', (16 March 2016) available at: <http://internetofthingsagenda.techtarget.com/blog/IoT-Agenda/A-world-with-more-IoT-standards-bodies-than-IoT-standards>.

2553 Nicolo Zingales, 'Of Coffee Pods, Videogames, and Missed Interoperability: Reflections for EU Governance of the Internet of Things', TILEC Discussion Paper No. 2015-026, (2015), available at SSRN: <https://ssrn.com/abstract=2707570>.

2554 Ibid.

2555 Ibid.

offer complementary products on a platform stands for its vertical openness.”²⁵⁵⁶

This is an interesting observation, and an issue would be whether, from a competition policy perspective, horizontal openness in vertical interoperability should be promoted, or whether system competition, between ecosystems, should be promoted. Kerber and Schweitzer seem to urge caution in creating open (industry-wide) standards in this regard, and that competition between vertical data interoperability systems (ecosystems) should be given room to foster the market. Only when we can identify market failure should industry wide standards be promoted, and tolerated, under competition law, according to the authors. Industry-wide standards may have several anticompetitive effects, especially by lessening or totally eliminating competition between technical systems (i.e. substitute technology competition), while only allow for competition between complementary products in the same technology (rivalry based on the same technology platform, through competition based on design and some form of imitation).²⁵⁵⁷

The two main market failures Kerber and Schweitzer identify are, firstly, dominant or monopoly firm, where one firm won the rivalry for the demand and obtained unilateral power to decide on the prevailing standard. The authors put in this group the monopolist that obtained its market power through network effects and “tipping”. The second example of market failure that requires an industry-wide standard is according to the authors when the technology being standardized is of infrastructure character and the economic advantages are so great that the industry can only have one standard, i.e. the market tend to be a natural monopoly.²⁵⁵⁸

Presumably, a third market failure situation would be markets where the patent or intellectual property thicket has become so wide that the industry or relevant market is not functioning or even emerging; and that access to SEPs need to be obtained through a industry wide *de jure* standard with the complementary SSO IP Guidelines.²⁵⁵⁹ Indeed, an object for the implementation of *de jure* telecom standards was to overcome the patent thicket in the technology.²⁵⁶⁰

It is interesting to pursue the idea that industry-wide standards should be leniently treated or even promoted in these three instances of market failure, while in other scenarios consortia driven standard-setting as well as unilateral standard efforts should benefit from heightened scrutiny under competition law since such collaboration may lead to exclusionary collusive behaviour or anticompetitive exclusionary abusive conduct.

From a data and IoT perspective, interestingly, the issue is not only what standards are being utilized. It is often more relevant to discuss control, for example: (i) Who controls the sensors embedded in infrastructure? (ii) Who controls the sensors in devices? (iii) Who controls the flow of information between the moving parts of the IoT and the static

2556 Wolfgang Kerber, Heike Schweitzer, ‘Interoperability in the Digital Economy’ (2017) 8 JIPITEC 39.

2557 Ibid, at 42 e

2558 Ibid at 45

2559 Bjorn Lundqvist, Standardization Under EU Competition Rules and US Antitrust Laws – The Rise and Limits of Self-Regulation (Edward Elgar 2014), at 16

2560 Ibid.

parts of the IoT? (iv) Who controls the user interfaces?. These issues will be described when analysing upper layer standards below.

10.6. Distinguishing between open source versus proprietary models/ecosystems: the crucial role of interoperability

As we have explained in Chapter 3, the governance of digital ecosystems may take different forms. Firms put in place strategies in order to capture a disproportionate amount of the surplus value created by the innovation. In some situations, the most effective strategy will be to opt for an 'open architecture' that nurtures complementarity through an open eco-system, should a system of 'open innovation' be the most effective way to generate higher value in this industry. In other situations, firms may opt for a 'walled garden approach', opting for a closed architecture with regard to firms with competing assets and capabilities entering the value chain while keeping it open for firms with complementary assets. Finally, in other circumstances, firms may opt for vertical integration; taking full control over the rents generated by the complementarities brought by the innovation whilst maintaining the possibility to exclude or marginalize any new entrant, for instance, by denying interoperability with regard to some indispensable technological interfaces.

Open interfaces ensure interoperability so that a platform may be used by more people and more companies, the entity controlling the platform earning from the increase of the value of the platform and therefore the price paid for it and of itself. By becoming system integrators, the architects of digital ecosystems capture value from both the development of new products that they may be able to provide and some of the surplus value from the use of their platform.

In a fast moving technological environment where the boundaries of the various industries are blurred, interoperability will be important for both 'open' and vertically integrated digital ecosystems. Interconnectivity will be implemented through Cyber-Physical Systems (CPS) combining 'real-time data acquisition from the physical world and information feedback from the cyber space' with 'intelligent data management, analytics and computational capability that constructs the cyber space'²⁵⁶¹. These will enable cognition (e.g. quality controls of the various machine components and product quality reasoning), and at the level of configuration self-adjustable prognostics and the development of self-optimized machine tools.

In view of the important fixed costs to develop these technologies, which will need to be shared among the various industry participants, the complexity of the transactions and the need for data, 'open manufacturing' initiatives will therefore become more common in Industry 4.0 in view of the importance of interoperability in these complex technological and business environments²⁵⁶². For instance, Microsoft and car manufacturer

2561 J. Lee, B. Bagheri, H.-A. Kao, A Cyber-Physical Systems architecture for Industry 4.0-based manufacturing systems, (2015) 3 Manufacturing Letters 18.

2562 On the importance of interoperability for Industry 4.0., see Y. Lu, Industry 4.0: A survey on technologies, applications

BMW have launched in 2019 an open industrial IoT platform, the 'Open Manufacturing Platform', in order to develop common production and logistics optimization efforts and cross-industry collaboration²⁵⁶³. The platform aims to standardise data across data producers, provide central auditability, enhance common data monetization opportunities through controlled sharing and ownership of data, and become an open source for Open Manufacturing Platform components. Members of this Open Manufacturing Platform will cooperate and share a set of information with the OMP community about the roadmap of use cases to be developed and made available for the rest of the platform. Members will maintain ownership of their own data and IP rights.

'Intelligent interoperability' should enable devices (sensors and actuators) to describe themselves in a way that is understandable by both machines and humans²⁵⁶⁴. These implicit or explicit semantics would power a dynamic Industry 4.0 production line. This dynamic perspective in interoperability as a fundamental principle of Industry 4.0. and the IoT indicates the importance of developing common or de facto connectivity (interoperability) standards.

10.7. Connectivity (interoperability) standards

As seen, connectivity (interoperability) standards specify how different technologies interact with one another and work together successfully.²⁵⁶⁵ Technical interoperability standards are important in many industries but are especially relevant to the ICT sector and the emerging Internet of Things. They enable, for instance, to make and receive calls from smartphones from different manufacturers or that computer hardware components from various producers may be combined to create a functional computer. In the IoT they will enable connected devices such as cars, domestic appliances, wearables and industrial equipment to communicate seamlessly with each other, regardless of manufacturer, operating system, or other technical components.²⁵⁶⁶ An example of well-known connectivity standards are 3G (UMTS), 4G (LTE) and upcoming 5G cellular standards, Wi-Fi, Bluetooth and USB.

Interoperability standards are covered by patented technology and the proper use and licensing of standard-essential patents has been the subject of world-wide litigation and controversy, as will be described below.

and open research issues, (2017) 6 Journal of Industrial Information Integration 1.

2563 See, <https://www.microsoft.com/en-us/enterprise/open-manufacturing-platform>.

2564 For a discussion, see F. Lelli, Interoperability of the Time of Industry 4.0 and the Internet of Things, (2019) 11 Future Internet 36, doi:10.3390/fi11020036.

2565 On benefits of interoperability see: Keith Maskus, Stephen Merrill (eds.), 'Patent Challenges for Standard-Setting in the Global Economy: Lessons from Information and Communication Technology' (National Research Council 2013) p. 16; Brad Biddle et al, 'The Expanding Role and Importance of Standards in Information and Communications Technology Industry' (2012) 53 Jurimetrics 177 (explaining the benefits interoperability standards in ICT industry).

2566 Commission 'ICT Standardisation Priorities for the Digital Single Market' (Communication) COM (2016) 176 final, p. 2.

10.7.1. The notion and controversy surrounding Standard Essential Patents

A patent is said to be standard essential if it must be implemented to comply with a standard.²⁵⁶⁷ In other words, there are no other ways to use the standard without infringing the SEP and any company implementing a standard would need to take a license for SEPs. Well known technology standards often include thousands of SEPs. For example, according to some estimates, there are over 45,000 and 39,000 patents declared essential to 4G LTE and 3G UMTS respectively,²⁵⁶⁸ while the Wi-Fi standard is estimated to have around 3000 declared SEPs.²⁵⁶⁹

In order to make the implementation of the standard widely accessible, SSO typically require patent owners to commit to make licences for SEPs available on fair, reasonable and non-discriminatory terms.²⁵⁷⁰ A FRAND commitment is said to pursue two main principles: on the one hand ensuring widespread access and implementation of the standard by standard-implementers and, on the other hand, securing adequate invention incentives by technology developers. Namely, standardisation efforts would be wasted if subsequent implementation of a standard would be blocked because of unavailability of the patented technology.²⁵⁷¹ Generally, patents give their holders the right to exclude others from using patented inventions. Normally patent holders are free to decide whether to license their patents or not, and if they do decide to make licenses available, they are free to set the terms.²⁵⁷² A FRAND commitment, however, is a constraint on a patent holder's freedom to choose whether it wants to license or not, as well as on the terms of such licence. Consequently, the FRAND commitment ensures that the patent holder will not deny licences for its SEPs and will also make them available under terms

2567 See ETSI, Intellectual Property Rights Policy (28 November 2017) Article 15; IEEE, Standard Boards Bylaws (December 2017) Clause 6.1 ("Essential Patent Claim" shall mean any Patent Claim the practice of which was necessary to implement either a mandatory or optional portion of a normative clause of the IEEE Standard when, at the time of the IEEE Standard's approval, there was no commercially and technically feasible non-infringing alternative implementation method for such mandatory or optional portion of the normative clause."); ITU-ISO-IEC, 'Patent Statement and Licensing Declaration for ITU-T, ITU-R Recommendation, ISO or IEC Deliverable' (26 June 2015) ("Essential patents are patents that would be required to implement a specific Recommendation | Deliverable").

2568 See Justus Baron, Tim Pohlman, 'Mapping Standards to Patents Using Databases of Declared Standard-Essential Patents and Systems of Technological Classification' (2018) 27 *Journal of Economics & Management Strategy* 504, 521.

2569 In re Innovation IP Ventures LLC Patent Litigation 2013 WL 5593609 (N.D. Illinois 2013) at 43. However, not all declared essential patents are essential in fact due to widespread overdeclaration problem. Studies and cases have demonstrated that only approximately between 20%-50% of declared patents are actually essential for a standard. See: Tim Pohlman, Knut Blind, 'Landscaping Study on Standard Essential Patents (SEPs)' (2017) p. 48-49.

2570 Justus Baron, Daniel Spulber 'Technology Standards and Standard Setting Organisations: Introduction to the Searle Center Database' (2018) 27 *Journal of Economics & Management Strategy* 462 (studying IPR policies of 37 SSO and find that 32 SSOs allow for FRAND licensing, with the remaining 5 SSOs require royalty-free licensing).

2571 See: Keith Maskus, Stephen Merrill (eds.), 'Patent Challenges for Standard-Setting in the Global Economy: Lessons from Information and Communication Technology' (National Research Council 2013) pp. 52-61 (discussion some objectives of FRAND licensing).

2572 For overview of patent rights see: Tanya Aplin, Jennifer Davies, *Intellectual Property Law: Text Cases and Materials* (2nd edition, Oxford University Press 2013) pp 562-563 ("patent law confers a property right, i.e. a right enforceable in rem rather than in personam. Thus, a patent owner can exercise her exclusive monopoly right against third parties...").

that are fair and reasonable. On the other hand, the FRAND commitment, also protects the interests of patent holders who are assured that they will be adequately rewarded for the use of their technology.²⁵⁷³ Patent holders need adequate compensation for the investment in research and development of new technologies, securing incentives to innovate in the future. Otherwise, there is a risk that patent holders would abandon open collaborative standardisation and opt instead for creating closed proprietary standards.²⁵⁷⁴

The FRAND commitment therefore represents a balance between the interests of standard implementers and patent holders.²⁵⁷⁵ These interests are not opposed but are mutually reliant. Manufacturers want best available technologies to make successful innovative products, and standard developers are also interested in successful implementation of standardised technologies in order to earn adequate rewards for their research and development and invest in further innovation.

However, the problem in practice is the vagueness and indefiniteness of what FRAND terms precisely are.²⁵⁷⁶ What is fair and reasonable to a large patent owner may not be for a standard implementer. The unclarity about the precise meaning of FRAND licensing terms has led to disputes between large technology companies and to full-blown smartphone patent wars involving almost every company in the smartphone industry. The next section will look more closely on the elements of FRAND commitment that produced tensions in practice.

10.7.2. The meaning of FRAND commitment to license Standard Essential Patents

What FRAND is about involves a complex mutual interrelation between contract, patent and competition law. As it will be seen, some legal system see FRAND commitment as an enforceable contract for the benefit of third parties, while other use (or try to use) competition law to ensure FRAND's enforceability. FRAND commitment also impact the availability of patent remedies – injunctions and patent damages. Finally, there are debates about what principles should FRAND royalty include and on what royalty base should be used for FRAND royalties. These issues will be discussed in turn.

2573 See ETSI, Intellectual Property Rights Policy (29 November 2017) 3.2 ("IPR holders whether members of ETSI and their AFFILIATES or third parties, should be adequately and fairly rewarded for the use of their IPRs in the implementation of STANDARDS and TECHNICAL SPECIFICATIONS") [emphasis added].

2574 Jorge Padilla, John Davies, Aleksandra Boutin, 'Economic Impact of Technology Standards' (Compass Lexecon 2017 (finding that open collaborative standards are more innovative and beneficial to the economy than closed propriety standards)).

2575 ETSI, Intellectual Property Rights Policy (29 November 2017) 3.1 ("the ETSI IPR POLICY seeks a balance between the needs of standardization for public use in the field of telecommunications and the rights of the owners of IPRs.")

2576 See Mark Lemley, 'Intellectual Property Rights and Standard-Setting Organizations' (2002) 90 California Law Review 1889, 1964 ("it is all well and good to propose that SSOs require licensing on reasonable and non-discriminatory terms. But without some idea of what those terms are, reasonable and non-discriminatory licensing loses much of its meaning.").

10.7.2.1. The nature on FRAND: the interplay between contract, patent and competition law

Under one interpretation, when the SEP holder submits a FRAND commitment it enters into a binding contract with the SSO that it will make licenses available for its SEPs on FRAND terms to all third parties implementing a standard. Implementers of a standard may then rely on this FRAND contract between the SEP holder and the SSO as a third party intended beneficiaries. Accordingly, contract law lies at the heart of enforcing FRAND commitments. The notion that FRAND commitment is of contractual nature has been widely recognised in the literature.²⁵⁷⁷

The benefits of conceptualising a FRAND commitment as an enforceable contract is that it gives all standard implementers a right to challenge the licensing terms offered by SEPs holders before court. It is fundamentally a remedy against holdup. If the SEP holder offers excessive non-FRAND licensing terms, standard implementers have the right to sue the SEP holder for the breach of contract and request the court to decide whether offered terms are FRAND and, if the court finds that they are not, to determine the precise FRAND licensing terms. Moreover, if the SEP holder is negotiating in bad faith, implementers may also bring breach of contract action.²⁵⁷⁸ By having the breach of contract action there can be no practical possibility for holdup, as implementers always have the option to go court.

However, the drawbacks of a contractual approach is that not all jurisdiction may accept such interpretation and recognise third-party beneficiary rights.²⁵⁷⁹ It appears that courts in Germany do not recognise FRAND as forming and enforceable contract but represent a mere invitation of third parties to make offers.²⁵⁸⁰

Nevertheless, courts in the US and the UK have recognised that a FRAND commitment creates a binding contract between the SEP holder and the SSO, and that standard implementers may enforce it as third-party beneficiaries. Courts analysed whether FRAND commitments given to IEEE, ETSI and ITU-T were enforceable contracts and found that

²⁵⁷⁷ See: Mark Lemley, 'Intellectual Property Rights and Standard-Setting Organisations' (2002) 90 California Law Review 1889, 1909-1917; Roger Brooks, Damien Geradin, 'Interpreting and Enforcing the Voluntary FRAND Commitment' (2011) 9 International Journal of IT Standards and Standardization Research 1, 2; Gregory Sidak, 'The Meaning of FRAND, Part II: Injunctions' (2015) 11 Journal of Competition Law & Economics 201, 210 ('The SEP holder and the SSO are parties to the contract, whereas the implementer of the standard (the licensee) is a third-party beneficiary').

²⁵⁷⁸ For example, seeking injunctions before offering licensing terms may be a breach of duty to negotiate in good faith. See: *Realtek Semiconductor v LSI*, 946 F.Supp.2d 998, 1008 (N.D. Cal. 2013) ('the court holds that defendants breached their contractual obligations to IEEE and to Realtek as a third-party beneficiary of that contract by seeking injunctive relief against Realtek before offering Realtek a license').

²⁵⁷⁹ For further criticism of contractual approach see: Jorge Contreras, 'A Market Reliance Theory for FRAND Commitments and Other Patent Pledges' (2015) 2 Utah Law Review 479.

²⁵⁸⁰ See: Thomas Cotter, 'Comparative Law & Economics of Standard Essential Patents and FRAND Royalties' (2014) 22 Texas Intellectual Property Law Journal 311, 318 (referring to two Germany cases); however for the contrary argument see: Claudia Tapia, *Industrial Property Rights, Technical Standards and Licensing Practices (FRAND) in the Telecommunications Industry* (Carly Heymanns Verlag 2010) p. 18-36, 39-40 (arguing how under German law it may be possible that a FRAND commitment constitutes a binding pre-contract for the benefit of third parties).

they were. For instance, in *Unwired Planet v Huawei* Birss J. analysed the nature of FRAND commitment given at ETSI, which is governed by French law, and found that it forms a binding contrary to which third parties may rely.²⁵⁸¹ Similarly in the US, Judge Robart found in *Microsoft v Motorola* found that Motorola's commitment given to IEEE and ITU created a binding contract which Microsoft could enforce as third party beneficiary, in particular because Microsoft was a member of these SSOs.²⁵⁸²

On the other hand, some authors claim that competition law should have a role to play regulating the enforcement FRAND commitments.²⁵⁸³ According to Shapiro and Melamed, holding an SEP can create or enhance the patent owner's market power.²⁵⁸⁴ *Ex ante*, before the patent is included in a standard, the patent owner's market power is constrained because it competes with alternative technologies to be included in the standard or to be used by standard implementers. However, *ex post*, after the patent is included in the standard, the market power of patent owner is increased because implementers are now locked-in to using the technologies claimed by SEPs. Implementers would be willing to pay a much larger royalty for use of the patented technology than they would have paid *ex ante*, when the SEP holder faced competition from other technologies. In these circumstances, according to Melamed and Shapiro, "the SEP holder has *ex post* monopoly power that, if left unchecked, would enable it to obtain royalties far in excess of the royalties that it could earn in a competitive market"²⁵⁸⁵ Thus, according to some commentators, competition laws should apply the police the *ex post* opportunist my SEP owners. Melamed, Shapiro, Chappatte, Cary and others argue that competition law should be used to address opportunistic conduct of SEP holders such as patent holdup and the imposition of excessive or non-discriminatory royalties.²⁵⁸⁶ Dolmans and Jones similarly argues that the use of injunctive relief by SEP holders should be a competition law infringement because it allows the SEP owners to pressure implementers into acceptance of excessive licensing terms.²⁵⁸⁷

2581 *Unwired Planet v Huawei* [2017] EWHC 2988 (Pat) paras 98-146.

2582 See: *Microsoft v Motorola*, 854 F.Supp.2d 993 (W.D. Wash. 2012).

2583 See Joseph Farrell, John Hayes, Carl Shapiro and Theresa Sullivan, 'Standard Setting, Patents and Hold-up' (2007) 74 *Antitrust Law Journal* 603; George Cary, Mark Nelson, Steven Kaiser, Alex Sistla, 'The Case for Antitrust Law to Police the Patent Holdup Problem in Standard Setting' (2011) 77 *Antitrust Law Journal* 913; Joseph Kattan, 'FRAND Wars and Section 2' (2013) 27 *Antitrust* 30; Douglas Melamed, Carl Shapiro, 'How Antitrust Law Can Make FRAND Commitments More Effective' (2018) 128 *The Yale Law Journal* 211

2584 Douglas Melamed, Carl Shapiro, 'How Antitrust Law Can Make FRAND Commitments More Effective' (2018) 128 *The Yale Law Journal* 2110, 2113.

2585 *Ibid*, 2114/

2586 Douglas Melamed, Carl Shapiro, 'How Antitrust Law Can Make FRAND Commitments More Effective' (2018) 128 *The Yale Law Journal* 2110; Phillippe Chappatte, 'FRAND Commitments – The Case for Antitrust Intervention', (2009) 5 *European Competition Journal* 319; George Cary, Mark Nelson, Steven Kaiser, Alex Sistla, 'The Case for Antitrust Law to Police the Patent Holdup Problem in Standard Setting' (2011) 77 *Antitrust Law Journal* 913.

2587 Maurits Dolmans, 'Standards for Standards', (2002) 26 *Fordham International Law Journal* 163. Alison Jones 'Standard-Essential Patents: FRAND Commitments, Injunctions and the Smartphone Wars', (2014) 10(1) *European Competition Journal* 1.

However, others question the suitability and applicability of competition law in SEP context.²⁵⁸⁸ Enforcing a patent *ex post* is not a straightforward process. It requires going to court and provide the infringement and validity of patent, which may take years to decide. As seen, even if the SEP owner is successful in proving the infringement and validity of its SEPs, injunctions usually do not follow automatically, and going to court and asking for injunction would hardly scare infringers into accepting excessive licensing terms. Moreover, before ruling on an injunction, a court would first need to establish whether offered terms are FRAND. It is also submitted that US antitrust law does not prohibit excessive prices as such, while the legal standards for proving excessive prices under EU competition may not be adequate in the IP context.²⁵⁸⁹ According to Ohlhausen, only some form of deception during the standardisation process may involve actionable anti-competitive conduct.²⁵⁹⁰ Otherwise, as noted by Hovenkamp, “antitrust law is a blunt instrument for dealing with many claims of anticompetitive standard setting.”²⁵⁹¹

Despite voluminous academic debate, in practice, the application of competition law to FRAND disputes remained limited. As will be seen below, competition law was only raised successfully with respect to the use of injunctions in the EU and traditional competition law doctrines have proved to be difficult to apply in FRAND context.

Finally, FRAND commitment also affects patent remedies. As seen, patent law allows patent owners to demand and receive injunctions against patent’s unauthorised use, as well as to request the level of royalties they seem adequate. However, the FRAND commitment constraints both the availability of injunctions for the infringement of SEPs and the level of royalties the SEP owner can demand. As will be seen below, injunctions for SEPs are not automatic and it is increasingly difficult for the SEP owner to obtain them. In the US no enforceable injunction has been awarded for the infringement of SEPs,²⁵⁹² and SEP owners in the EU must comply with elaborate criteria set out in *Huawei v ZTE* judgment of the ECJ.²⁵⁹³ When it comes to assessing damages for the infringement of SEPs, FRAND commitment also constrain the amount of damages which must also be on a FRAND level.

2588 See Damien Geradin, Miguel Rato, ‘FRAND Commitments and EC Competition Law: A Reply to Phillippe Chappatte’ (2010) 6 European Competition Journal 129; Douglas Ginsbourg, Koren Wong-Ervin, Joshua Wright, ‘The Troubling Use of Antitrust to Regulate FRAND Licensing’ (2015) 10 CPI Antitrust Chronicles 2; Maureen Ohlhausen, ‘The Elusive Role of Competition in Standard-Setting Antitrust Debate’ (2017) 20 Stanford Technology Law Review 93; Gregory Werden, Luke Froeb, ‘Why Patent Holdup Does Not Violate Antitrust Laws’ (2018) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3244425.

2589 Damien Geradin, ‘Pricing Abuses by Essential Patent Holders in a Standard-Setting Context: A View From Europe’ (2009) 76 Antitrust Law Journal 329.

2590 Maureen Ohlhausen, ‘The Elusive Role of Competition in Standard-Setting Antitrust Debate’ (2017) 20 Stanford Technology Law Review 93.

2591 Herbert Hovenkamp, ‘Standard Ownership and Competition Policy’ (2007) 48 Boston College Law Review 87, 87.

2592 Gregory Sidak, ‘Injunctive Relief and FRAND commitments in the United States’ in Jorge Contreras (ed.), *The Cambridge Handbook of Technical Standardization Law: Competition, Antitrust and Patents* (2018 Cambridge University Press).

2593 *Huawei v ZTE*, ECLI:EU:C:2015:477.

10.7.2.2. FRAND Royalty Principles

Under which principles should a FRAND royalty be determined? This has been another area of contention where economists, companies and policy makers tried to set out some broad guidelines on how FRAND royalties should be calculated.

Under one approach, FRAND royalty should be based on the ex-ante incremental value of the patented technology before it was included in a standard.²⁵⁹⁴ The essence of this approach is that SEP owner should be able to capture only the value of its technology before inclusion in the standard, and not any additional value arising out of standardisation. Namely, during standard's development, different patented and unpatented technologies compete with each other for the inclusion in a standard. At that stage, the patent holder would only be able to charge an incremental value of its technology over the next best alternative. However, once a patented technology is chosen to be a part of the standard, other alternative technologies are eliminated. At that stage, the patent holder would allegedly be able to capture not only the incremental value of its technology over the next best alternative but also the full value of the standard, even though its technology makes only a modest contribution, as well as implementers' switching costs. Accordingly, it is alleged that the patent holder should not be able to capture this additional "holdup" value. Instead, the patent owners should be compensated only for the value of their technology before it was included in a standard.

The ex-ante incremental value approach has been very influential. The US and the EU competition authorities principally endorsed the ex-ante incremental value approach. The FTC in the 2011 Evolving IP Marketplace Study held that "a definition of RAND based on the ex-ante value of the patented technology at the time the standard is set necessary for consumers to benefit from competition among technologies to be incorporated into the standard – competition that the standard-setting process itself otherwise displaces",²⁵⁹⁵ and recommended to courts to "cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was defined."²⁵⁹⁶ More recently, the European Commission in its 2017 Communication on Standard Essential Patents recommended that a FRAND royalty for SEPs should primarily "focus on the technology itself and in principle should not include any element resulting from the decision to include the technology in the standard."²⁵⁹⁷ Moreover, US courts have also principally endorsed this notion of FRAND royalty. The Federal Circuit

2594 For economic literature see Mark Lemley, Carl Shapiro, 'Patent Holdup and Royalty Stacking' (2007) 85 Texas Law Review 1991, 2040-2043; Joseph Farrell, John Hayes, Carl Shapiro and Theresa Sullivan, 'Standard Setting, Patents and Hold-up' (2007) 74 Antitrust Law Journal 603, 637; Denis Carlton, Allan Shampine, 'An Economic Interpretation of FRAND' (2013) 9 Journal of Competition Law & Economics 531, 545. Recently, a group within CEN/CENELEC produced a guiding paper on the principles of FRAND licensing, supportive of the ex-ante incremental value approach. See: CEN/CENELEC, 'Core Principles and Approaches for Licensing of Standard Essential Patents' (January 2019) p. 7.

2595 FTC, The Evolving IP Marketplace (2011) p. 194.

2596 Ibid.

2597 Commission, 'Setting out the EU Approach to Standard Essential Patents' (Communication) COM (2017) 712 final, p. 6; also Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements [2011] OJ C11/1, para 289.

held that the FRAND royalty rate must be based “on the value of the invention, not any value added by the standardization of that invention,”²⁵⁹⁸ and that “any royalty award must be based on the incremental value of the invention, not the value of the standard as a whole or any increased value the patented feature gains from its inclusion in the standard.”²⁵⁹⁹ District courts have similarly rule that FRAND royalty should be based on patents ex ante value before it was included in a standard.²⁶⁰⁰

However, the ex-ante incremental value approach has been criticized in the literature.²⁶⁰¹ First, it does not take into account the fact that SEPs are largely developed with the aim of being part of the standard and technology may not exist independently of standard-development context.²⁶⁰² Technology developers invest significant resources into research and development of technologies precisely to be part of the standard, and technological solutions are developed and refined in parallel with standardisation efforts within SSOs. Consequently, there may not always exist alternative technologies for SEPs in question. Secondly, basing royalties on this ex-ante value would expropriate all the value of the standard to standard implementers. It is doubtful whether the ex-ante incremental value leaves enough incentives to invent and invest to future standard development.

Instead, it has been suggested that FRAND royalties should be based on upon the value of the patented standardised technology to users.²⁶⁰³ Such approach would arguably secure adequate incentives to invent with a reasonable cost to access the standard.

Be that as it may, these economic discussions are largely theoretical. Courts in practice use observable factors to calculate FRAND royalties by, for instance, looking at comparable prior licences for SEPs in questions and/or a top down approach which seeks to determine the total aggregate royalty for a standard and distribute it proportionally to SEP owners.²⁶⁰⁴

2598 *Ericsson v D-Link* 773 F.3d 1201(Fed. Cir. 2014) 1235; *CSIRO v Cisco* 2015 WL 7783669 (Fed. Cir. 2015) p. 8.

2599 *Ibid*

2600 See *Apple v Motorola* 869 F.Supp.2d 901(N.D. Illinois 2012) 913; *Microsoft v Motorola*, 2013 WL 2111217 (W.D. Wash. 2013) para 74 (“from an economic perspective, a RAND commitment should be interpreted to limit a patent holder to a reasonable royalty on the economic value of its patented technology itself, apart from the value associated with incorporation of the patented technology into the standard”); *In re Innovatio IP Ventures*, 2013 WL 5593609 (N.D. Illinois 2013) p. 9.

2601 See: Richard Epstein, F. Scott Kieff, Daniel Spulber, ‘The FTC, IP, and SSOs: Government Hold-up Replacing Private Coordination’ (2012) 8 *Journal of Competition Law & Economics* 1; Gregory Sidak, ‘The Meaning of FRAND, Part I: Royalties’ (2013) 9 *Journal of Competition Law & Economics* 931; Damien Geradin, ‘The Meaning of “Fair and Reasonable” in the Context of Third-Party Determination of FRAND Terms’ (2014) 21 *George Mason Law Review* 919; Anne Layne-Farrar, Gerrard Llobet, ‘Moving Beyond Simple Examples: Assessing the Incremental Value Rule Within Standards’ (2014) 36 *International Journal of Industrial Organization* 57.

2602 Gregory Sidak, ‘The Meaning of FRAND, Part I: Royalties’ (2013) 9 *Journal of Competition Law & Economics* 931, 932.

2603 See CEN/CENELEC, ‘Principles and Guidance for Licensing Standard Essential Patents in 5G and the Internet of Things (IoT), Including the Industrial Interent’ (2018) p. 7.

2604 For overview of these approaches see: Japan Patent Office, *Guide to Licensing Negotiations Involving Standard Essential Patents* (05 June 2018).

10.7.2.3. A FRAND royalty base: Smallest Saleable Patent Practicing Unit (SSPPU) or end product?

Besides royalty rate, another significant aspect is to look at appropriate royalty base for FRAND calculations. The choice is typically whether FRAND royalties should be based on the value of the final downstream product implementing the standard (the entire market value rule or EMVR) or based on the value of the infringing component itself (often called Smallest Saleable Patent Practicing Unit – SSPPU).

Again, the literature is split on this issue. On the one hand, some groups and commentators argue that applying royalties on end-products systematically overcompensates patent holders as it enables them to capture the value of other unrelated patented and unpatented features and components.²⁶⁰⁵ Basing royalties on final downstream products effectively represents a ‘tax’ on successful implementers who have made a significant investment in the development of downstream products and other valuable follow-on non-standardised technologies. Instead, they suggest that SEP royalties should be based on the value of components because they fully implement standard’s functionality.²⁶⁰⁶

On the other hand, others claim that it is a long-standing industry practice to license on the final downstream device, which is more efficient and properly takes into account the contribution of SEPs to final products.²⁶⁰⁷ The full value of the standard said to be fully realised only in final downstream products because of synergies and added value that SEPs bring.²⁶⁰⁸ Basing royalties on components would therefore systematically under-compensate SEP holders, diminish incentives to innovate and participate in the development of future standards.

2605 For overview of the literature in support of component licensing see: Mark Lemley, Carl Shapiro, ‘Patent Holdup and Royalty Stacking’ (2007) 85 Texas Law Review 1991, 2024; Janusz Ordover, Allan Shampine, ‘Implementing the FRAND Commitment’, (2014) October, The Antitrust Source 1, 10 (“our concern about using the price of the downstream device is that its market price can reflect a great deal of value to consumers derived from other sources”); Joseph Kattan, ‘The Next FRAND Battle: Why the Royalty Base Matters?’ (2015) 1 CPI Antitrust Chronicles 1; Joseph Kattan, Janusz Ordover, Allan Shampine, ‘FRAND and the Smallest Saleable Unit’ (2016) September, Competition Policy International 1; CEN/CENELEC, ‘Core Principles and Approaches for Licensing of Standard Essential Patents’ (January 2019) p. 7.

2606 Joseph Kattan, Janusz Ordover, Allan Shampine, ‘FRAND and the Smallest Saleable Unit’ (2016) September, Competition Policy International 1 (“with respect to the value of the technology, the standard is implemented in the component”).

2607 For overview of the literature supportive of end-device licensing see: Damien Geradin, Anne Layne-Farrar, ‘Patent Value Apportionment Rule for Complex, Multi-Component Products’ (2011) 27 Santa Clara High Technology Law Journal 763; Gregory Sidak, ‘The Proper Royalty Base for Patent Damages’ (2014) 10 Journal of Competition Law & Economics 989; Cristina Caffarra, Pierre Regibeau, ‘Patent Explosion and Patent Wars: Holdup, Royalties and Misunderstandings over “Market Value”’ (2014) https://ecp.crai.com/wp-content/uploads/2017/11/Caffarra_et_al_SEP_and_market_value_revised_clean.pdf; CEN/CENELEC, ‘Principles and Guidance for Licensing Standard Essential Patents in 5G and the Internet of Things (IoT), Including the Industrial Interent’ (2018) p. 7.

2608 See: Gregory Sidak, ‘The Proper Royalty Base for Patent Damages’ (2014) 10 Journal of Competition Law & Economics 989, 991 (“Using the price of the smallest salable patent-practicing component as the royalty base risks undercompensating the patent holder, because it ignores (1) the effects that the patented technology has on the value of the downstream product and (2) the value that synergies between complementary technologies create.”).

The roots of the discussion involving apportionment can be traced back to the US Supreme Court decision in *Garretson v Clark*²⁶⁰⁹ in the late 19th century.²⁶¹⁰ Addressing the issue of patent damages and apportionment, the Court held that “The patentee . . . must in every case give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.”²⁶¹¹

The debate is especially fought in the US, where courts in some instances have required from patent owners, in case of complex multi-component products, to base their royalty demands on the value of the smallest saleable patent practicing unit (SSPPU).²⁶¹² However, in the case of SEPs the Federal Circuit clarified in *Ericsson v D-Link* and *CSIRO v Cisco* that “the rule ... which would require all damages models to begin with the smallest salable patent-practicing unit—is untenable”²⁶¹³ The Federal Circuit held that the SSPPU doctrine has two parts – a substantive legal rule and an evidentiary principle. A substantive legal rule is the requirement of apportionment, namely that “the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more,”²⁶¹⁴ and that the apportionment could be done in various ways “by careful selection of the royalty base to reflect the value added by the patented feature, where that differentiation is possible; by adjustment of the royalty rate so as to discount the value of a product’s non-patented features; or by a combination thereof.”²⁶¹⁵ On the other hand, the evidentiary principle behind the SSPPU is the fear of jury bias. According to the Federal Circuit: “It is not that an appropriately apportioned royalty award could never be fashioned by starting with the entire market value of a multi-component product—by, for instance, dramatically reducing the royalty rate to be applied in those cases—it is that reliance on the entire market value might mislead the jury, who may be less equipped to understand the extent to which the royalty rate would need to do the work in such instance.”²⁶¹⁶ Therefore, it seems there is no legal requirement which would compel the parties to use the SSPPU as the royalty base. The

2609 *Garretson v Clark* (1884) 111 U.S. 120.

2610 Anne Layne-Farrar, ‘The Patent Damages Gap: An Economist’s Review of U.S. Patent Damages Apportionment Rules’ (2017) SSRN <<https://ssrn.com/abstract=2911289>>.

2611 *ibid.*

2612 See *Cornell University v. Hewlett-Packard Co.*, 609 F.Supp.2d 279 (N.D. New York 2009); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51 (Fed. Cir. 2012) (“Where small elements of multi-component products are accused of infringement, calculating a royalty on the entire product carries a considerable risk that the patentee will be improperly compensated for non-infringing components of that product. Thus, it is generally required that royalties be based not on the entire product, but instead on the “smallest salable patent-practicing unit”).

2613 *CSIRO v Cisco*, 809 F.3d 1295, 1303 (Fed. Cir. 2015).

2614 *Ericsson v D-Link*, 773 F.3d 1201, 1226 (Fed Cir 2014).

2615 *Ibid.*, 1226.

2616 *Ibid.*, 1226-1227.

exact FRAND royalty base would depend on the negotiation between the parties.

Despite the controversy, the most recent SEP cases involved courts calculating royalties on the value of final downstream products. In UK's *Unwired Planet v Huawei*,²⁶¹⁷ the court calculated FRAND royalties for Unwired Planet's 2G, 3G and 4G SEP portfolio on the value of Huawei's final products, while the same occurred in US' *TCL v Ericsson* case.²⁶¹⁸ It thus appears that large technology companies do, in fact, base their licences on the final downstream products.

10.7.3. Potential unilateral anticompetitive practices with respect to SEPs

Because of their strategic importance the conduct of SEP holders has been carefully scrutinised by competition law authorities. Three potential problematic practices have been observed to-date: i) seeking injunctions for infringement of SEPs; ii) refusal to license SEPs to competitors on a chip level and iii) the imposition of excessive non-FRAND royalties. These practices will be analysed in detail below.

10.7.3.1. Injunctions and standard essential patents

An injunction is a patent law remedy for the infringement of a valid patent which prohibits future acts of infringement. If the injunction is granted, the defendant must stop selling the infringing product until it secures a licence or designs around the patent.

The use of injunctions for SEPs has been highly controversial. Injunctions have been seen as a tool for opportunistic 'patent holdup' strategies by SEP owners.²⁶¹⁹ Namely, even if one SEP is found to be valid and infringed it may stop the sale of the whole product. SEP holders are said to be able to use injunctions, or even the threat of injunctions, to force implementers to accept excessive holdup licensing terms. Accordingly, many argue that injunctions for SEPs should not be available in principle,²⁶²⁰ and the only remedy in SEP cases should be the award of FRAND damages.²⁶²¹ Others, however, fear that prohibiting injunctive relief will open the door for opportunistic behaviour of standard implementers i.e. 'holdout'.²⁶²² Namely, injunctions are seen as the tool to bring imple-

2617 *Unwired Planet v Huawei* [2017] EWHC 2988 (Pat).

2618 *TCL v Ericsson*, 2017 WL 6611635 (C.D. Cal. 2017).

2619 Mark Lemley, Carl Shapiro, 'Patent Holdup and Royalty Stacking' (2007) 85 Texas Law Review 1991, 1992-1994.

2620 Mark Lemley, Carl Shapiro, 'Patent Holdup and Royalty Stacking' (2007) 85 Texas Law Review 1991; Joseph Farrell, John Hayes, Carl Shapiro, Theresa Sullivan, 'Standard Setting, Patents and Hold-up' (2007) 74 Antitrust Law Journal 60; Joseph Miller, 'Standard Setting, Patents and Access Lock-in: RAND Licensing and the Theory of the Firm', (2007) 40 Indiana Law Review 351.

2621 Suzane Mitchell, 'Bargaining for FRAND Royalties in the Shadow of Patent Remedies Law' (2011) 77 Antitrust Law Journal 889, 908; Denis Carlton, Allan Shampine, 'An Economic Interpretation of FRAND' (2013) 9 Journal of Competition Law & Economics 531, 550; Janush Ordovery, Allan Shampine, 'Implementing the FRAND Commitment' October 2014, The Antitrust Source, 7.

2622 See: Damien Geradin, Miguel Rato, 'Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty Stacking and the Meaning of FRAND' (2007) 3 European Competition Journal 101, 119; Peter Camasasca, Gregor Langus, Damien Neven, Pat Treacy, 'Injunctions for Standard-Essential Patents: Justice is Not Blind' (2013) 9 Jour-

menters back to the negotiation table.²⁶²³ Otherwise, implementers may decide to behave opportunistically and use the strategy of systematically infringing patents, waiting to be sued by SEP holders and litigate the validity of each and every patent in the portfolio. Such strategy may lead SEP owners to settle for below FRAND royalties, hampering further incentives to innovate in standardisation.

Having said that, getting an injunction for SEPs is not an easy task and the availability of injunctions has been restricted both in the EU and the US. The EU used competition law for restricting the availability of injunctions, while the same effect in the US was realised by patent law remedies. The next paragraphs will briefly describe EU and US approaches.

The fear of dangerous patent holdup has led the European Commission to intervene in two cases concerning Motorola and Samsung in their 'smartphone patent wars' against Apple.²⁶²⁴ The first decision emerged from Motorola's dispute against Apple in Germany. Motorola asserted certain patents essential to 3G telecommunications standard against Apple's products in Germany. The parties could not agree on licensing terms, and Apple made several licensing proposals. A second licensing offer left the determination of the royalty rate to Motorola's equitable discretion, provided for the payment of a provisional royalty into an escrow account and included a withdrawal of all pending validity challenges to Motorola's SEPs. That offer was considered as inadequate, as it did not include a termination clause in case of the future challenge of Motorola's SEPs and acknowledgment of past damages above FRAND rates. After the injunction was granted and Motorola posted a security for its enforcement, Apple sent final proposal accepting Motorola's demands. Karlsruhe Appeal Court deemed such offer sufficient and declared injunctions moot.²⁶²⁵

The Commission, however, concluded that Apple was acting as a willing licensee as of the second offer. Not accepting termination clause and not agreeing on past damages above FRAND rates does not represent unwillingness to license. Thus, the Commission held that Motorola abused its dominant position by seeking and enforcing injunctions on its FRAND committed SEPs against Apple, a willing licensee. The Commission, however, decided not to impose any fines because there was no EU case law regulating these issues and the national courts have reached diverging conclusions.²⁶²⁶

The second case concerned Samsung's injunction requests against Apple before courts in France, Germany, Italy, the Netherlands and the UK, on the basis of certain of its

nal of Competition Law & Economics 285; Gregor Langus, V Lipatov, Damien Neven, 'Standard-Essential Patents: Who is Really Holding Up (and When)?' (2013) 9 Journal of Competition Law & Economics 253 (finding that both patent holdups and holdouts may arise in equilibrium).

2623 James Ratliff, Daniel Rubinfeld, 'The Use and Threat of Use of Injunctions in the RAND Context' (2013) 9 Journal of Competition Law & Economics 1, 14.

2624 AT.39985-Motorola – Enforcement of GPRS standard essential patents, Commission Decision of 29 April 2014 (Motorola); AT.39939-Samsung – Enforcement of UMTS standard essential patents, Commission Decision of 29 April 2014 (Samsung).

2625 Motorola, 163.

2626 Motorola, 561.

UMTS SEPs.²⁶²⁷ Samsung later unilaterally withdrew these actions.²⁶²⁸ The Commission nevertheless continued with the investigation as it was concerned that Samsung might continue seeking injunctions on its SEPs in the future. The case ended with commitments decision whereby Samsung committed not to seek injunctions against potential licensees who sign up to a specified licensing framework. Under this framework, Samsung committed to approach the prospective licensee and start with the negotiation process, which may last up to 12 months. If no agreement is reached, parties shall seek a determination of FRAND terms by the court or, if both parties agree, arbitration.²⁶²⁹

There are several characteristics of the Commission's intervention. First, the Commission introduced a novel type of abuse that did not exist before i.e. asking a court for remedy for patent infringement.²⁶³⁰ It is not uncommon for the Commission or the European Courts to uncover new forms of abuse. Indeed, it is long standing principle of EU competition law that dominant undertakings are prohibited from engaging in the competition 'outside of the scope of the competition on the merits'.²⁶³¹ There is no exhaustive list of what acts or practices are outside the scope of the competition on the merits, and the Commission traditionally used this provision to catch novel acts and practices that have anticompetitive effects on the market.²⁶³²

In *Motorola*, the Commission relied on the past cases concerning the refusal to license IP rights where it was established that the exercise of IP rights may, in exceptional circumstances, amount to an abuse.²⁶³³ The list of 'exceptional circumstances' when the exercise of IP rights may be limited is not exhaustive. Against this background, the Commission extended the case law on refusal to license IP rights to seeking injunctions for enforcement of patent rights. The Commission emphasised that SEP holder, like any other patent holder, is generally entitled to seek and enforce injunctions as part of the exercise of its IP rights.²⁶³⁴ However, the exceptional circumstances of this case being the participation in the standard-setting process within an SSO (ETSI) and commitment

2627 Samsung, 54.

2628 Ibid.

2629 The European Commission Memo 'Antitrust decisions on standard essential patents (SEPs) – Motorola Mobility and Samsung Electronics – Frequently asked questions' 29 April 2014, MEMO 144/322.

2630 For extensive discussions on appropriate legal test for the abuse of dominant in these cases see: Nicolas Petit, 'Injunctions for FRAND-Pledged SEPs: The Quest for an Appropriate Test of Abuse Under Article 102 TFEU', (2013) 9(3) European Competition Journal 677 (warning against antitrust intervention and introduction of new type of abuse); Alison Jones, 'Standard-Essential Patents: FRAND Commitments, Injunctions and the Smartphone Wars', (2014) 10(1) European Competition Journal 1 (supporting the antitrust intervention against SEP holders); Urska Petrovic, 'Patent Holdup and the Limits of Competition Law: A Trans-Atlantic Perspective' (2013) 50 Common Market Law Review 1363.

2631 Case 322/81 *Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461, para 57; Case C-209/10 *Post Danmark A/S v Konkurrencerådet*, judgment of 27 March 2012, para 23.

2632 Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, para 860; Case C-280/08 P *Deutsche Telekom v Commission* [2010] ECR I-9555, para 173; and Case C-52/09 *TeliaSonera* [2011] ECR I-527, para 26.

2633 *Motorola* 278, quoting: Case 238/87 *Volvo v Veng* [1988] ECR 6211, para 9; Joined Cases C-241/91 P and C-242/91 P *RTE and ITP v Commission* ("Magill") [1995] ECR I-743, para 50; Case C-7/97 *Bronner* [1998] ECR I-7791, para 39; Case C-418/01 *IMS Health* [2004] ECR I-5039, para 35; Case T-201/04 *Microsoft v Commission* [2007] ECR II-3601, para 331.

2634 *Motorola*, 278.

to licence on FRAND terms, justify the limitation on SEP holders' right to seek and enforce injunctive relief.²⁶³⁵

The Commission justified competition law intervention by the need to prevent patent holdup, holding that its decision "promotes the proper functioning of standard-setting by ensuring the accessibility of the technology ... and by preventing hold-up".²⁶³⁶ Another reason for Commission's interventions was that national courts came to different standards for assessing injunctions for SEPs, and it wanted to establish an EU-wide framework.

Finally, the Commission established that seeking an injunction for infringement of FRAND committed SEPs is an automatic abuse of dominant position. Put differently, the Commission held that by going to court and asking injunction, the SEP holder abuses its dominant position and the burden of proof is on the SEP holder to justify its behaviour.²⁶³⁷ According to the Commission, the SEP may seek injunction only if proves that the infringer: i) is in financial distress and unable to pay its debts; ii) has assets that are located in jurisdictions that do not provide for adequate means of enforcement of damages; iii) is unwilling to enter into a licence agreement on FRAND terms,²⁶³⁸ or iv) is seeking injunctive relief with respect to its own SEPs.²⁶³⁹ According to the Commission, the infringer can always escape injunctions and prove it is willing to license if it agrees with the court or arbitration determination of FRAND terms and accepts to be bound by such determination.²⁶⁴⁰ Also, challenging the validity, essentiality and infringement of SEPs is not considered as unwillingness to license on the part of the implementers.²⁶⁴¹

During the Commission's investigation of Motorola and Samsung, a dispute arose before the Dusseldorf Regional Court between Huawei and ZTE. Huawei held SEPs for the 4G LTE standard which it committed to licence on FRAND terms. It offered a license to ZTE, and after several months of unsuccessful negotiations, Huawei initiated infringement proceedings seeking, among other things, an injunction prohibiting infringement and the recall of products.²⁶⁴² The Dusseldorf Regional Court decided to stay proceedings and refer questions to the European Court of Justice whether, and under what conditions, seeking injunctions for SEPs could represent an abuse of dominant position.

The ECJ confirmed that seeking injunctions by SEP holder may, under certain circumstances, represent an abuse of dominant position. It reiterated that the enforcement of IP rights might in exceptional circumstances amount to an infringement of Article 102 TFEU. The facts that the patent is essential to a standard adopted by the SSO, and SEP

2635 Motorola, 279-300.

2636 Ibid, para 418.

2637 Motorola, 421-428 (placing the discussion whether Apple was behaving as a willing licensee in objective justification part of the decision).

2638 Motorola, 427; Samsung, 67.

2639 Samsung, Commitments offered to the European Commission.

2640 Motorola, para 437; Samsung, para 98.

2641 Motorola, paras 439-440; Commission 'Antitrust decisions on standard essential patents (SEPs) – Motorola Mobility and Samsung Electronics – Frequently asked questions' MEMO 29 April 2014.

2642 C170/13, Huawei Technologies v ZTE ECLI:EU:C:2015:477.

holder's FRAND commitment, create exceptional circumstances justifying the limitation on the exercise of intellectual property rights.²⁶⁴³ Unlike the Commission, however, the ECJ was more neutral and imposed obligations on both parties. It held that it would not be an abuse of dominant position if the SEP holder complies with the following steps:

- (i) before seeking an injunction, the SEP holder must approach and notify the implementer about infringement and designate specific SEPs that are infringed and the way they are infringed;²⁶⁴⁴
- (ii) the infringer should express its willingness to conclude the licensing agreement;²⁶⁴⁵
- (iii) the SEP holder should then provide the specific, written offer for a license on FRAND terms, specifying, in particular, the amount of the royalty and the way in which is to be calculated;²⁶⁴⁶
- (iv) Infringer must then diligently and in good faith respond to the offer, without any delaying tactics. If the infringer does not accept, it must submit promptly and in writing his FRAND counter-offer;²⁶⁴⁷
- (v) If the SEP holder rejects the counter-offer, the infringer must provide appropriate security (for example, by providing a bank guarantee or placing necessary amounts on deposit) and render accounts;²⁶⁴⁸
- (vi) At that point, the parties may by common agreement request the FRAND royalty to be determined by an independent third party (presumably court or arbitration).²⁶⁴⁹

Therefore, in the EU the availability of injunctions for SEPs is constrained by competition law. Further application of *Huawei v ZTE* framework remains on national courts who are carefully examining *Huawei* criteria before deciding whether to grant injunctions or not.²⁶⁵⁰

In the US, injunctions for SEPs have been limited primarily via patent law. US courts have used traditional principles of equity to deny injunctive relief to SEP holders. US Patent Act provides that a permanent injunction "may" be granted "in accordance with the principles of equity, on such terms as the court deems reasonable".²⁶⁵¹ The decision to grant or deny an injunction is at the discretion of US district courts, reviewable on appeal only for abuse of discretion. In 2006, the Supreme Court held in *eBay v MercExchange*²⁶⁵² that,

2643 Ibid, 49-51.

2644 Ibid, 60-61.

2645 Ibid, 63.

2646 Ibid, 63.

2647 Ibid, 65-66.

2648 Ibid, 67

2649 Ibid, 68

2650 For a systematic overview of national case law see database prepared by 4IP Council at: <https://caselaw.4ipcouncil.com/guidance-national-courts>

2651 35 U.S.C. § 283.

2652 *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

to obtain injunction, patent holder must prove the following four requirements: i) that it has suffered an irreparable injury; (ii) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (iii) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (iv) that the public interest would not be disserved by a permanent injunction.²⁶⁵³

The *eBay* test equally applies to SEP cases as well.²⁶⁵⁴ It is extremely difficult for SEP holder to satisfy *eBay* criteria and, to date, no permanent injunction was issued for infringement of FRAND committed SEP.²⁶⁵⁵ Injunctions were typically denied because it could not be established that patentee would suffer irreparable harm and that damages would not provide sufficient compensation.²⁶⁵⁶ For example, in *Apple v Motorola* the Federal Circuit held that: "Considering the large number of industry participants that are already using [Motorola's patent], including competitors, Motorola has not provided any evidence that adding one more user would create [irreparable] harm."²⁶⁵⁷ The court also noted that many other licenses that Motorola concluded regarding the SEP in questions, "strongly suggest that money damages are adequate to fully Motorola compensate for any infringement".²⁶⁵⁸ Similarly in *Microsoft v Motorola*,²⁶⁵⁹ the court held that Motorola failed to demonstrate that it will suffer irreparable harm absent injunction because Microsoft committed to accepting a license on FRAND terms for Motorola's SEP portfolio, the litigation is continuing to determine the details of such a license, and at some point in the future, either by agreement of the parties or by court adjudication, a license agreement will become a reality.²⁶⁶⁰ The impending license agreement would also provide an adequately remedy to Motorola as a matter of law, instead of an injunction.²⁶⁶¹

Finally, the The US Federal Trade Commission (FTC) investigated two cases where SEP holders requested injunctions as a standalone violation of Section 5 of the FTC Act. i.e. an unfair method of competition and unfair acts or practices. The first case concerned Bosch's proposed merger with a company SPX Services that held certain SEPs related to air conditioning equipment standards, which it committed to license on FRAND terms and sought injunctions against implementers of respective equipment.²⁶⁶² The second case concerned Motorola's request for injunctions and exclusion orders before courts

2653 Ibid, at 391.

2654 Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1331–32 (Fed. Cir. 2014) ("the framework laid out by the Supreme Court in *eBay*, ... provides ample strength and flexibility for addressing the unique aspects of FRAND committed patents and industry standards in general.").

2655 See: Kirti Gupta, Mark Snyder, 'Smartphone Litigation and Standard Essential Patents' (2014) IP2 Working Paper Series No. 14006 (finding that in litigation between smartphone manufacturers during 2001-2013 no injunction has been granted for any patent determined to be SEP). We are not aware of any other case since 2013 as well.

2656 See: Apple v Motorola 757 F.3d 1286 (Fed. Cir. 2014); Apple v Motorola 869 F.Supp.2d 901 (N.D. Illinois 2012); Microsoft v Motorola, 2012 WL 5993202 (W.D. Washington 2012).

2657 Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1331–32 (Fed. Cir. 2014)

2658 Ibid.

2659 Microsoft v Motorola, 2012 WL 5993202 (WD Washington 2012).

2660 Ibid.

2661 Ibid.

2662 Robert Bosch GmbH, Docket No. C-4377 (2013).

and the ITC against Microsoft and Apple.²⁶⁶³

In the view of the FTC, seeking injunctive relief against a 'willing licensee' is incompatible with FRAND commitment, as it may allow the SEP holder engage in patent holdup and obtain unreasonable licensing terms.²⁶⁶⁴ It held that "negotiation that occurs under threat of an injunction may be weighted heavily in favour of the patentee in a way that is in tension with the[F]RAND commitment."²⁶⁶⁵

The FTC held that SEP holders may only seek injunctions if the implementer: i) is not subject to United States jurisdiction; ii) has stated in writing or in sworn testimony that it will not accept a license on any terms; iii) refuses to enter a license agreement determined by court or arbitration; iv) files a claim for injunctive relief against SEP holder for its own FRAND SEPs; v) fails to assure that it is willing to accept a license on FRAND terms, or vi) a court determined that implementer used SEP for purposes other than implementing the standard.²⁶⁶⁶

However, both cases were concluded with consent orders, which do not represent an admission of liability or a binding legal precedent, and the position of the FTC remains untested at courts. Nevertheless, it signals the position of the FTC to view the mere seeking of injunctions by SEP holders as a violation of Section 5 of the FTC Act.

In conclusion, injunctions for SEPs do not follow automatically and courts have been cautious in granting this type of remedy. As seen, EU and US used different legal mechanisms to achieve the same effect. In the EU, competition law primarily governs the availability of injunctions for SEPs, while in the US patent law doctrines impose restricting in awarding injunctions.

10.7.3.2. Refusal to license to upstream competitors (chip level licensing)

Another potentially anti-competitive practice is a refusal by the SEP owner to license upstream, to chip manufacturers, but licenses only to final downstream device manufacturers. Under one view, components best reflect the value of the standardised technology and, therefore, licences should be concluded with component manufacturers (license to all approach).²⁶⁶⁷ Basing royalties on end-products is likened to a tax on innovation that inappropriately overcompensates SEP holders for the value of other downstream technology and components unrelated to the standardised technology.²⁶⁶⁸ Accordingly, the SEP owner cannot refuse to license its SEPs to chip manufacturers, if they so request.

²⁶⁶³ Motorola Mobility LLC and Google Inc., Docket No C-4410 (2013).

²⁶⁶⁴ Robert Bosch GmbH, Analysis of Agreement Containing Consent Orders to Aid Public Comments (2013) p. 4; Motorola Mobility LLC and Google Inc Analysis of Proposed Consent Order to Aid Public Comment (2013) p. 2

²⁶⁶⁵ Motorola Mobility LLC and Google Inc, p 3-4.

²⁶⁶⁶ See: Robert Bosch GmbH, Decision and Order, IV E (2013); Motorola Mobility LLC and Google Inc Decision and Order, II E (2013).

²⁶⁶⁷ See Fair Standards Alliance, 'Position Paper- SEP Licenses Available to All' (24 June 2016); Janusz Ordover, Allan Shampine, 'Implementing the FRAND Commitment', (2014) October, The Antitrust Source 1; Joseph Kattan, 'The Next FRAND Battle: Why the Royalty Base Matters?' (2015) 1, CPI Antitrust Chronicles 1.

²⁶⁶⁸ See Fair Standards Alliance, 'Position Paper- SEP Licenses Available to All' (24 June 2016) p. 4.

On the other hand, others argue the ordinary industry practice is to license at the final downstream product level, that no company has been denied access to standardised technology and no company wanting to sell components to downstream manufacturers has been prevented from doing so.²⁶⁶⁹ Moreover, it is said that the end-device accurately reflects the true value of the standardised technology as the value of the standard is fully realised in the end-product device, not on the chip physically implementing it.²⁶⁷⁰ Under this approach, access to all companies wanting to implement the standard is granted (access to all), while SEP holders only chose the level of the supply chain for concluding licenses without prohibiting the use of standard by anybody else in the production chain.

Refusal to license to all is still an unexplored area of competition law in SEP cases. The FTC brought a case against Qualcomm in January 2017 alleging, among others, a violation of Section 2 of the Sherman Act for refusing to license SEPs to competing chip manufacturers.²⁶⁷¹ According to FTC, “Qualcomm’s refusal to license competing manufacturers of [modem chips], in contravention of its FRAND commitments, contributes to [Qualcomm’s] ability to tax its competitors’ [modem chip] sales, and thus maintain Qualcomm’s modem chip monopoly.”²⁶⁷² In 2018 the district court judge ruled that Qualcomm had a *contractual* duty to license to component manufacturers arising out of its FRAND commitment given to standard-setting organisations ATIS and TTA.²⁶⁷³ Finally, in 2019 judge ruled that Qualcomm also has an *antitrust* duty to license to all.²⁶⁷⁴ The judge applied seldom used *Aspen Skiing* test which prohibits refusal to deal with competitors when three requirements are met: i) unilateral termination of a voluntary and profitable course of dealing; ii) refusal to deal even if compensated at retail price, which suggested that the conduct was anticompetitive; iii) refusal to provide its competitor a product that was already sold in a retail market to other customers.²⁶⁷⁵ In this case, district court judge considered that all three criteria have been fulfilled as Qualcomm historically used to license component manufacturers which it terminated in order to extract unreasonably high royalties from end-device manufacturers.²⁶⁷⁶ The case, however, is criticised for relying too much on past historical information that may not be adequate for changed industry environment, that it does not take into account the basic principles of patent law that the patentee is free to decide at which production chain to license its technology and disregards incentives to innovate in the future.²⁶⁷⁷ The case is currently under appeal and it remains to be seen what will be the final US word in this regards.

2669 IP Europe, ‘Why “License to All” Could be a License to Kill Innovation in Europe’ (May 2017).

2670 Gregory Sidak, ‘The Proper Royalty Base for Patent Damages’ (2014) 10 Journal of Competition Law & Economics 989.

2671 FTC v Qualcomm, 2017 WL 2774406 (N.D. Cal. 2017)

2672 Ibid, p. 13.

2673 FTC v Qualcomm, Case 5:17-cv-00220-LHK (N.D. Cal. 2018) (Order Granting FTC’s Motion for Partial Summary Judgment).

2674 FTC v Qualcomm, Case 5:17-cv-00220-LHK (N.D. Cal. 2019).

2675 Ibid, p. 137.

2676 FTC v Qualcomm, Case 5:17-cv-00220-LHK (N.D. Cal. 2019) p. 137-141.

2677 See Richard Epstein, ‘Judge Koh is no 5G Wizz’ (28 May 2019) Hoover Institution, available at: <https://www.hoover.org/research/judge-koh-no-5g-wiz>

10.7.3.3. Excessive non-FRAND royalties

Finally, there are debates whether competition can or should apply to SEP owners who offer excessive non-FRAND licensing terms. The potential of applying competition law to non-FRAND royalties depends on the suitability of existing competition law doctrines. Namely, EU competition law prohibits dominant companies from imposing excessive and discriminatory prices defined as those that “have no reasonable relation to the economic value.”²⁶⁷⁸ The legal test for proving excessive prices requires, first, determining whether the difference between the costs actually incurred and the price actually charged is excessive.²⁶⁷⁹ If the answer is affirmative, then it must be established whether the price is unfair in itself or when compared to competing products.²⁶⁸⁰ However, applying the legal test for determining excessive prices to concrete example of SEP royalties is not an easy task.

The difficulty in applying Article 102 TFEU to excessive non-FRAND royalties was apparent in two cases investigated by that the European Commission. In the *Rambus* case, the European Commission challenged the imposition of royalties for the use of SEPs that were considered as excessive.²⁶⁸¹ Rambus’ conduct consisted of a “patent ambush”, intentional deception of the SSO by concealing the existence of patents and patent applications during the development of a standard and later, once its technology has been adopted into the standard, claiming unreasonably high royalties.²⁶⁸² Thus, because of a patent ambush, Rambus managed to avoid giving a FRAND commitment and charge unconstrained royalties for the use of its SEPs.

The European Commission also investigated whether Qualcomm was charging non-FRAND terms for the use of its SEPs, contrary to Article 102 TFEU.²⁶⁸³ Qualcomm participated in the standardisation process and committed to license its SEPs for WCDMA standard on FRAND terms. Later, complainants alleged that Qualcomm failed to comply with its FRAND licensing commitment. In opening the investigation, the European Commission stated that it would evaluate whether Qualcomm’s breach of FRAND commitment consisted in an abuse of dominant position. In the words of the European Commission: “a finding of exploitative practices by Qualcomm in the WCDMA licensing market contrary to Article [102] of the EC Treaty may depend on whether the licensing terms imposed by Qualcomm are in breach of its FRAND commitment.”²⁶⁸⁴

However, neither investigation resulted in definite finding of the abuse of dominant position. The *Rambus* case was closed with a commitments decision, where Rambus undertook to lower its royalties, but did not determine whether the challenged conduct

2678 Case 27/76 United Brands v Commission [1978] ECR 207, para 250.

2679 See: Richard Whish, David Bailey, *Competition Law* (9th edition, Oxford University Press 2015) (overview of excessive pricing regulation under EU competition law) pp. 762-766.

2680 Case 27/76 United Brands v Commission [1978] ECR 207, para 252.

2681 Commission, ‘Antitrust: Commission Confirms Sending a Statement of Objections to Rambus’ MEMO/07/330 (2007).

2682 Ibid.

2683 Commission, ‘Antitrust: Commission initiates formal proceedings against Qualcomm’ MEMO/07/389 (2007).

2684 Ibid.

represented an abuse of dominant position.²⁶⁸⁵ The investigation of Qualcomm was terminated after complainants withdrew their claims.²⁶⁸⁶ Therefore, the results of European Commission's investigations demonstrates the difficulties in linking the breach of FRAND commitment with the competition law notions of excessive royalties.

The US antitrust law, on the other hand, does not prohibit the imposition of excessive prices. The US Supreme Court even held that: "charging of monopoly prices, is not only not unlawful, but it is important element of free market system. The opportunity to charge monopoly prices, at least for a short period of time, is what attracts business acumen in the first place, it induces risk taking that product innovation and economic growth."²⁶⁸⁷ Therefore, charging excessive non-FRAND royalties as such is not actionable antitrust conduct in the US. The US antitrust law is concerned with the illegitimate obtainment or maintenance of monopoly power, and not how legitimate monopolist should use its monopoly power. Section 2 of the Sherman Act makes it unlawful to "monopolize, or attempt to monopolize ... any part of the trade or commerce among the several States."²⁶⁸⁸ To prevail on a claim for monopolization or attempted monopolization, the plaintiff must prove that the defendant had power in the relevant market and wilfully sought, acquired, or maintained that power in an unlawful manner.²⁶⁸⁹

Accordingly, in order to catch the imposition of non-FRAND royalties as an antitrust offence, antitrust claims were focused on the fact that SEP holder *deceived* SSO in order to *unlawfully* acquire monopoly power. In *Broadcom v Qualcomm*,²⁶⁹⁰ Broadcom alleged that Qualcomm deceived SSO to include its SEPs into the standard by falsely promising to license its patents on FRAND terms, and then breached such promise by licensing its technology on non-FRAND terms. The Third Circuit held that for the violation of Section 2 of the Sherman Act it has to be proven that: i) the SEP holder intentionally falsely promised to license its SEPs on FRAND terms, ii) the SSO's reliance on that promise when including the technology in a standard, and iii) the patent holder's subsequent breach of that promise.²⁶⁹¹ Only then would the conduct represent unlawful acquisition of monopoly power. This is not an easy test to prove and no court to date has definitively established the violation of Section 2 of Sherman Act for mere breach of FRAND royalty terms.

Therefore, the mere breach of FRAND commitment is thus not an actionable antitrust conduct in the US.²⁶⁹² At least one US court explicitly confirmed this finding. In *TCL v Ericsson*

2685 Commission, 'Antitrust: Commission accepts commitments from Rambus lowering memory chip royalty rates' IP/09/189 (2009) (Rambus agreed to charge zero royalties for the SDR and DDR chip standards that were adopted when Rambus was a JEDEC member, and a maximum royalty rate of 1.5% for the later generations of JEDEC DRAM standards, instead of 3.5% that Rambus was previously charging).

2686 Commission, 'Antitrust: Commission closes formal proceedings against Qualcomm' MEMO/09/516 (2009).

2687 *Verizon Communications v Law Offices of Curtis v Trinko*, 540 U.S. 398, 407 (2004).

2688 15 U.S. Code § 2.

2689 *United States v. Grinnell Corp.*, 384 U.S. 563, 570-571 (1966).

2690 *Broadcom v Qualcomm* 2006 WL 2528545 (D. New Jersey 2006); *Broadcom v Qualcomm* 501 F.3d 297 (Third Cir. 2007).

2691 *Broadcom v Qualcomm* 501 F.3d 297, 314 (3rd Cir. 2007); also in *Microsoft v Interdigital* 2016 WL 1464545 (D. Delaware 2016).

2692 See Maureen Ohlhausen, 'The Elusive Role of Competition in Standard-Setting Antitrust Debate' (2017) 20 *Stanford Technology Law Review* 93, 121-122.

son the court held that: “the crux of TCL’s argument seems to be that because TCL has evidence that Ericsson has breached FRAND, TCL has evidence that Ericsson has necessarily done so in an anticompetitive way ... The Court has not been provided with any authority for this kind of bootstrapping of a breach of contract case, without more, into a violation of the policy or spirit of antitrust laws. Instead ... it is clear that there needs to be some other conduct by Ericsson than mere breach of its FRAND obligations.”²⁶⁹³ The US DOJ’s Assistant Attorney General for Antitrust Division Makan Delrahim, in a number of speeches, similarly emphasised current DOJ’s view that antitrust law should not be used to police mere breaches of FRAND commitments, and that remedies available in contract law or other legal disciplines are more adequate in that regard.²⁶⁹⁴

10.7.4. Comparative analysis of unilateral exclusionary and exploitative practices relating to IoT and standards: a BRICS’ perspective

10.7.4.1. Injunctions

10.7.4.1.1. Brazil

The Brazilian experience regarding FRAND injunctions is incipient. At the antitrust enforcement level, CADE (the Brazilian competition authority), as did the American courts, analysed the case between TCT and Ericsson and reached a similar conclusion.²⁶⁹⁵

The Brazilian case was initiated due to a complaint filed by TCT against Ericsson, in which it argued that Ericsson was employing exploitative practices relating to intellectual property, imposing unreasonable negotiation conditions and sham litigation. The last practice was related to many requests for judicial injunctions that Ericsson filed against TCT. In TCT’s views, such request for injunctions were baseless and had as only goal to force TCT to accept discriminatory contractual provisions.

In its decision, CADE’s General-Superintendence issued an opinion for the dismissal of the case. According to its reasoning, the debate regarding business conditions, including the value of royalties, was a private matter between two market players and did not fall within CADE’s jurisdiction. Moreover, the General-Superintendence did not find the injunction requests filed by Ericsson as baseless and thus could not characterize sham litigation.

The Brazilian decision has points of convergence with the decision rendered by the DoJ Antitrust Division, to the extent that both authorities concluded that the antitrust field is not the most adequate for disputes regarding royalty and FRAND issues.

²⁶⁹³ TCL v Ericsson, SACV 14-0341 JVS (C.D. Cal. 2016) p. 9-10.

²⁶⁹⁴ Makan Delrahim, ‘Take It to the Limit: Respecting Innovation Incentives in the Application of Antitrust Law’ (10 November 2017); Makan Delrahim, ‘The “New Madison” Approach to Antitrust and Intellectual Property Law’ (16 March 2018).

²⁶⁹⁵ Preparatory Proceeding n. 08700.008409/2014-00. Decision on 01 June 2015. Available at: <https://tinyurl.com/yy46nn97>

10.7.4.1.2. Russia

As regards Russian experience in the field of FRAND royalty, Russia's case law has no record of examining these issues as of now.

10.7.4.1.3. India

Over the last five years, the Competition Commission of India (CCI) and the Delhi High Court have tussled over defining the nascent jurisprudence of FRAND licensing terms in India. Both bodies have passed several interim orders (all involving the same SEP holder, Ericsson), which suggest opposing views on the balance of interests between essential technology contributors and technology users.

The Delhi High Court has confirmed the right of an SEP holder to obtain an injunction is coterminous with the issuance of SEPs on FRAND terms. Without determining the actual royalty base for SEPs, the High Court has, in several cases, based upon royalty payments made to comparable third-party licenses, ordered interim payments to SEP holders. These orders have been granted under the Indian Patents Act, 1970 (Patents Act). The High Court has also held that SEP holders are free to charge royalty rates based on the price of the downstream product, where the SEP technology is being used.

In contrast, CCI, India's competition law regulator, has adopted a stricter approach towards licensing practices of SEPs, under the [Indian] Competition Act, 2003 (Competition Act). CCI, under India's competition law regime, has *prima facie*, held that an SEP holder's charging of royalties based upon the price of a downstream product is discriminatory and amount to an abuse of a dominant position under section 4 of the Competition Act. Further, the use of non-disclosure agreements by SEP holders, was *prima facie* held as indication that an SEP holder is charging different royalty rates to different licensees in violation of its FRAND commitments. Under the enforcement scheme of the Competition Act, such *prima facie* finding is then investigated by the Office of the Director General (DG), CCI's own investigative arm. The findings of the DG are then reported back to the CCI, which then passes its final decision. As of May 2019, CCI has not adopted a final decision on either: basing royalty rates on price of downstream products or the use of non-disclosure agreements violates India's competition laws.

10.7.4.1.4. China

China is often one of the major battlefields where SEP holders are wrestling with licensees by seeking injunctive reliefs. This issue is touched by Chinese courts and antitrust agencies in various proceedings. In this regard, Chinese authorities and courts stress that the license negotiation must be under FRAND terms. That said, compared to the established precedents in the U.S. and Germany, Chinese courts seems to attach more importance to the subjective attitude of the SEP holder and licensee when evaluating whether to grant an injunctive relief. In essence, the Chinese courts require both parties to negotiate under a clear FRAND term. The courts will find out whose fault has led

to the failure of FRAND negotiation so as to determine whether to grant an injunction.

In 2013, Guangdong High Court ruled down an eye-catching antitrust case between InterDigital Corporation (IDC) and Huawei. IDC, the SEP holder was found to have abused its market dominance through various means, including unfairly seeking for injunctive relief to force Huawei, the licensee, to accept more onerous terms. The High Court held that IDC's action in other jurisdictions to sought for injunctive relief is unlawful as Huawei had expressed its willingness to negotiate with IDC to obtain the license.

The *Huawei v. IDC* case left the commentators with the impression that the Chinese court adopted a pro-implementor approach. Such approach was later reinforced by the Chinese antitrust watchdog's fine against Qualcomm. This idea is later adopted as a general rule. The Supreme Court of China (SPC) clarified in 2016 that injunctive relief is unavailable for an unwilling SEP holder against a willing licensee, where the SEP holder deliberately avoids its FRAND obligations, causing delay or failure to reach a licensing agreement.²⁶⁹⁶

However, it is unfair to label the SPC's approach as a total "pro-licensee" one as it also requires that the accused infringer (i.e., the implementor) shall have no apparent fault for the failure. While provided a general high threshold on FRAND-encumbered SEP injunctive reliefs, the SPC left open for many other issues with more complications, such as whether the injunction is available where the SEP holder and the implementer are both negotiating in good faith or both had fault, or under a reverse hold-up setting where the SEP holder was acting in good faith, but the licensee was not.

These points were later addressed by jurisprudence. On March 22, 2017, the Beijing IP Court granted an injunction relief in *Iwncomm vs. Sony*, marking a significant shift in the landslide by granting injunction to the SEP holder, Iwncomm. According to the Beijing IP Court, injunction could be granted to address reverse hold-up when the SEP holder had no fault and the implementer was acting in bad faith. The Court also stated that where both parties have fault to cause the failure of reaching license terms, the court shall weigh and assess the degree of fault of each party to determine whether to grant an injunction. In evaluating the parties' fault, the *Iwncomm vs. Sony* assessed whether the failure of reaching a license was caused by, for example, the SEP holder requesting non-FRAND loyalty fee, or the implementer by hindering or delaying the negotiation process.

Affirming the *Iwncomm vs. Sony* ruling, the Beijing High Court set out further guidance in its *Guidelines for Patent Infringement Determination (2017)* (Beijing Guidelines).²⁶⁹⁷ The Beijing Guidelines further provides that in the case neither party has fault, the implementer can avoid an injunction by deposit with the court an amount of its proposed royalty. This rule is understood to address the prominent concern from SEP holders on reverse hold-up (hold-out). These rules are generally consistent with the EU guidance set out in the by the Court of Justice in *Huawei vs. ZTE* with more clarity on the procedural requirements.

²⁶⁹⁶ Article 24 of the Interpretations (II) of the Supreme People's Court on Several Issues concerning the Application of Law in the Trial of Patent Infringement Dispute Cases (effective as of April 1, 2016)

²⁶⁹⁷ <http://bjgy.chinacourt.gov.cn/article/detail/2017/04/id/2820737.shtml>

According to the Beijing Guidelines, the SEP holder shall observe its FRAND commitment, several check-points are provided in this regard:

1. The SEP holder shall notify the implementor in writing of alleged patent infringement, including the asserted SEPs and how the SEPs has been infringed by the implementer;
2. The SEP holder shall provide information of SEPs (illustrative patent list) and proposed FRAND terms after the implementer has expressed its willingness to take a FRAND license, and allow the implementer to response within a reasonable timeframe conforming to business or trading practice;
3. The SEP holder shall act in good faith in negotiating with the implementer, including not to offer unreasonable terms and not to hinder or discontinue negotiation without justifiable grounds.

On the other hand, an implementer shall satisfy the following checklist to qualify as in good-faith:

1. To timely respond to the SEP holder's infringement notice within a reasonable timeframe;
2. To either accept or reject with a counter offer within a reasonable timeframe upon receipt of the SEP holder's license proposal;
3. To act in good-faith in negotiating with the SEP holder, including not to offer unreasonable terms and not to hinder or discontinue negotiation without justifiable grounds.

Though the *lnncomm vs. Sony* and the Beijing Guidelines are not binding on courts in other areas of China, the methodology appears to be adopted by other later rulings. Such as the Shenzhen Court's ruling over *Huawei vs. Samsung*.

As the most recent development on the injunctive relief issue, the Guangdong High Court issued its *Working Guidelines on the Trial of Standard Essential Patents Disputes* (Guangdong Guidelines). The substance of the Guangdong Guidelines is consistent with the Beijing Guidelines, which reaffirm and summarise the fault-based test for injunctive relief. Below is a table summarising the substantive rules set out by the Guangdong Guidelines:

Is the SEP holder at default	Is the SEP implementer at default	Is an injunctive relief available to the SEP holder?	Further factors to evaluate
Yes	No	No	N/A
No	Yes	Maybe	

Is the SEP holder at default	Is the SEP implementer at default	Is an injunctive relief available to the SEP holder?	Further factors to evaluate
Yes	Yes	Maybe	<ul style="list-style-type: none"> • The gravity comparison of the fault by the holder and the implementer; • Remedial actions taken; • Impact on the negotiation process; • Causation between the fault and breakdown of negotiations
No	No	No	Provided that the SEP implementer timely provides a sufficient deposit.

On the enforcement side, the authorities similarly affirmed the general idea that injunction may be a vehicle for patent holders to abuse their FRAND-encumbered patents. The merger review regulator, then MOFCOM, explicitly required in *Nokia/Microsoft* that the SEP holder should not prevent the implementation of its SEPs by filing an injunction, unless the licensor provides FRAND terms to the implementer, but the licensee refuses to make a deal. This approach was later reiterated by several other merger clearances.

In the draft *Guidelines for Abuse of IPRs*, the authority listed out factors it put into consideration while evaluating whether seeking for injunctive relief by a SEP holder is deemed as abusive. The factors include: (1) the actual willingness and actions taken by both parties during the course of negotiation; (2) whether the SEP related commitment contemplated with injunctive relief; (3) the licensing conditions provided by both parties; and (4) the impact of injunctive relief on the licensing negotiation, the relevant market, downstream competition and consumer welfare.

As a general observation, the approach adopted by Chinese courts and authorities is closer to that of the German courts and the ECJ's *Huawei vs. ZTE* approach than it is to the US/UK approach affirmed by *TCL vs. Ericsson* and the UK *Unwired Planet* cases.

10.7.4.2. The Determination of FRAND Royalty

10.7.4.2.1. Brazil

No practice currently available in Brazil.

10.7.4.2.2. Russia

No practice currently available in Russia.

10.7.4.2.3. India

10.7.4.2.3.1. Methodology to calculate SEP royalty

The contentious issue at hand is the methodology to calculate the SEP royalty rate but as of May 2019 no Indian court or regulator has set a FRAND royalty rate/base for SEPs. But contrasting jurisprudence has emerged from the interim decisions of the Delhi High Court and CCI. The Delhi High Court has determined that SEP holders are required to be paid by the licensees, during the pending of the legal dispute, and for the purposes of calculating such interim royalty rate, the court looked at similar third-party licenses.

For example, in December 2013, the court ordered Ericsson to produce 26 license agreements that Ericsson had signed with Indian licensees to determine the rate of the interim royalty due to Ericsson, an SEP holder, by Micromax (the largest Indian mobile handsets manufacturer), until the pendency of the trial. Earlier in March 2013, Ericsson sued Micromax for infringing eight of Ericsson's SEP patents in 2G and 3G telecommunications standards,²⁶⁹⁸ seeking damages and a permanent injunction against Micromax. Using these 26 comparable third-party licenses, the High Court set a range of royalties between 0.8 and 1.3 per cent of the sale price of the Micromax's end products where such infringing SEP technology has been used. Therefore, as per the Delhi High Court's decision, the basis of avoiding a permanent injunction would be to deposit such interim royalties, based upon comparable third-party licenses. The court was quick to note that the determination of the interim royalty base was not a determination of FRAND rates for the eight alleged infringing SEPs.

Micromax, during the pendency of its suit against Ericsson before the Delhi High Court, filed a complaint with CCI alleging that Ericsson charges exorbitant royalty rates for its SEPs, and thereby abuses its dominant position under section 4 of the Competition Act.²⁶⁹⁹ Contrary to what the Delhi High Court had held, Micromax alleged that Ericsson charged excessive royalties for its SEPs compared to those charged from other similar patentees. Further, that such royalties being based on the sale price of the downstream Micromax product in which the SEP technology was incorporated, was an abusive market practice. Micromax claimed that the royalty rate should be pegged at the value of the chip-set technology instead. Micromax reasoned that charging of such higher royalty rates would ultimately harm Indian consumers. In addition, the requirement of Ericsson that all current and prospective licensees sign a non-disclosure agreement, was used by Micromax to evidence that Ericsson could discriminate between similarly placed licensees, in violation of its FRAND commitments.

In its preliminary order in November 2013, CCI showed sympathy to such arguments and held that Micromax had established a *prima facie* case of abuse of dominant position by Ericsson and referred the case for further investigation by the DG. CCI delin-

²⁶⁹⁸ Telefonaktiebolaget LM Ericsson v Mercury Electronics & Another (2013) Delhi High Court, Interim Application No. 3825 of 2013, CS(OS) 442 of 2013.

²⁶⁹⁹ Micromax Informatics Ltd. v Telefonaktiebolaget LM Ericsson (2013) Competition Commission of India, Case 50 of 2013.

ated the relevant product market as SEPs that are necessary for mobile devices implementing the GSM standard and delineated India as the relevant geographic market. In such delineated relevant market, CCI found Ericsson to hold the largest SEPs for mobile communications for 2G, 3G and 4G patents for smartphones, tablets, etc, given that Ericsson's technology was the standard without any viable alternatives to prospective licenses. CCI thereafter concluded that in such a relevant market, given Ericsson's large portfolio of SEPs, it was in a dominant position.

CCI in its preliminary order further held that charging a different license fee per unit of a mobile phone for the use of the same technology is *prima facie* discriminatory and contrary to FRAND terms. According to CCI, Ericsson's royalty rates had no linkages to the SEP itself, given that licenses had to pay different royalty rates based on the price of two different downstream products, even if both the products used the same licensed technology. CCI held that such licensing practices reflected an excessive pricing model, and found it *prima facie* problematic under the 'abuse of dominance' provisions of the Competition Act.

Similar to Micromax, Ericsson in March 2015 sued Intex Technologies (Intex) for damages and seeking a permanent injunction for eight alleged infringing SEPs held by Ericsson²⁷⁰⁰. Intex argued that Ericsson's royalty rates were higher than those charged by the SEP holder to Micromax and Gionee, thereby violating the non-discriminatory component of its FRAND commitments. Similar to Micromax, Intex complained about Ericsson's practice of charging royalty rates based on the sale price of the downstream product of the licensee instead basing it upon the price of the chip-set.

The Delhi High Court disagreed with Intex's arguments and observed that the allegation against Ericsson charging Intex a higher royalty rate than those charged to comparable licenses were factually incorrect. The court held that in fact, Ericsson had charged Intex a lower royalty rate for products incorporating its SEPs, when sold within India, than it offered to Micromax and Gionee, and a higher royalty rate only for those of Intex's products which incorporated Ericsson's SEPs, sold outside India.

Further, the High Court, reiterating its earlier stand in the *Micromax* order, noting decisions in the US²⁷⁰¹ and in China²⁷⁰², found that Ericsson's practice of using the net sales price of the downstream mobile phone handset as the appropriate royalty base is lawful was not in violation of Ericsson's FRAND commitments.

Similar to the *Micromax* order, here again the High Court reiterated the importance of being able to calculate interim payments for SEPs by comparing to similar SEP licenses. Given the similarity of the case with the facts of its earlier interim order against Micro-

2700 Telefonaktiebolaget LM Ericsson v Intex Technologies (India) Ltd. (2014) Delhi High Court, Interim Application No. 6735 of 2014, CS (OS) 1045 of 2015.

2701 Commonwealth Scientific & Industrial Research Organisation v Cisco Systems, Inc. (2015) United States Court of Appeals, Federal Circuit, Case No. 2015-1066.

2702 National Development and Reform Commission, 'National Development and Reform Commission's monopolistic behavior of Qualcomm Responsible for rectification and fined 6 billion yuan' (2013) <http://www.ndrc.gov.cn/xwzx/xwfb/201502/t20150210_663822.html>.

max, the court declined to select a different royalty rate for Intex's interim payments to Ericsson. The court set the range of royalties between 0.8 and 1.3 per cent of the sale price of the Intex's end products. The court's approach has been that a proper royalty should reflect the market value of the patented technology as reflected in Ericsson's numerous patent license agreements. Anything less would be discriminatory against existing licensees.

Similar to *Micromax*, Intex filed a complaint against Ericsson before CCI in 2013.²⁷⁰³ Intex alleged that the Ericsson had abused its dominant position by offering to license Intex its SEP technology on exorbitant or excessive royalty rates and has proposed unfair and discriminatory licensing terms in violation of its FRAND commitments. Similar to *Micromax*, Intex argued that Ericsson's requirement of requiring its prospective licensees to sign a non-disclosure agreement further evidenced that Ericsson licenses its SEPs at different royalty rates, with different commercial terms to similarly placed potential licensees, in violation of the non-discriminatory component of its FRAND commitments. Intex argued that the non-disclosure agreements would lead to royalty stacking and patent hold-up, ultimately harming Indian consumers. Intex claimed that the requirement of the non-disclosure agreements requiring Intex to redress its grievances in a foreign forum, i.e., Singapore, rather than local courts amounted to a *judicial predation*.

CCI's interim conclusions in the Intex complaint were similar to those it had for the *Micromax* complaint. CCI held that Intex has been able to successfully establish a *prima facie* case of abuse of dominant position by Ericsson, under section 4 of the Competition Act, and referred the case for further investigation to the DG. CCI reiterated its conclusions in the *Micromax* case that royalties offered to Intex tied with the price of the downstream product had no linkage with the SEPs itself and were *prima facie* discriminatory and in violation of Ericsson's FRAND commitments.

CCI agreed with Intex that Ericsson's non-disclosure agreements and the refusal to share commercial terms fortified Intex's accusation of Ericsson's discriminatory licensing practices. CCI also found sympathy with Intex's arguments that charging different royalty rates based upon the price of Intex's downstream product for the use of the same SEP technology was "excessive pricing" and resulted in high cost of mobile phones. Excessive or unfair pricing and imposing discriminatory commercial terms is a exploitative abusive practice under section 4(2)(a) of the Competition Act.²⁷⁰⁴ CCI also held that imposition of a jurisdiction clause in the non-disclosure agreement that forced Intex to choose a foreign jurisdiction to redress its grievances, evidenced that Ericsson was in a dominant position. CCI's *prima facie* order does not mention under what legal provisions of the Competition Act did it reach such a conclusion.

2703 Intex Technologies (India) Ltd. v Telefonaktiebolaget LM Ericsson (2013) Competition Commission of India, Case 76 of 2013.

2704 The Competition Act 2002, s 4(2)(a) prohibits a firm in a dominant position to: (a) directly or indirectly, imposes unfair or discriminatory—(i) condition in purchase or sale of goods or services; or (ii) price in purchase or sale (including predatory price) of goods or service. Similar to the *Micromax* case, in the Intex case, CCI had determined that Ericsson was in a dominant position in the relevant product market for SEPs necessary for mobile devices that implement the GSM standard in India.

CCI concluded that similar to Micromax, Intex has also established a *prima facie* case against Ericsson of abusing its dominant position by the imposition of excessive royalty rates and discriminatory commercial terms under its restrictive non-disclosure agreements. Thereby, CCI ordered that the DG combine the Intex and Micromax complaints against Ericsson for further investigation.

In May 2015, Best IT World (India) Private Limited (iBall) filed another complaint against Ericsson which was very similar to those of Micromax and Intex²⁷⁰⁵. iBall alleged that Ericsson had imposed strict and onerous licensing conditions for licensing its SEPs, besides requiring that iBall choose Stockholm as the dispute settlement jurisdiction and execute a non-disclosure agreement with a duration of 10 years. In exact similar complaints to those of Micromax and Intex, iBall alleged that Ericsson's charging of royalties based on the sale price of its downstream product and bundling patents irrelevant to iBall's products were in violation of section 4 of the Competition Act. CCI agreed to iBall's arguments and similar to its orders in *Micromax* and *Intex* case, found Ericsson to be in a dominant position in the relevant market for standard essential patents for 2G, 3G and 4G mobile communications standards in India. Similar to its earlier orders, CCI found Ericsson to have *prima facie* abused its dominant position by charging excessive royalty rates based on the price of iBall downstream products and forcing it to execute a non-disclosure agreement was *prima facie* evidence of Ericsson's abusive market behaviour of imposing excessive and unfair royalty rates, contrary to its FRAND commitments. CCI directed the DG to investigate to combine the iBall complaint to those of Micromax and Intex and to submit a combined investigative report. Until May 2019, it is not known if DG has concluded its investigations and submitted its conclusion for CCI's considerations. In November 2015, iBall and Ericsson settled their dispute and negotiated a global license agreement. However, given that CCI's orders are *in rem*, antitrust investigations based upon iBall's original complaint would continue to be investigated by the DG.

Ericsson had brought an infringement suit against Gionee, a Chinese handset manufacturer, for infringing the same eight SEPs that Ericsson had asserted against Micromax and Intex.²⁷⁰⁶ The court calculated Gionee's interim royalty payment obligations with a specific reference to the interim royalties that the court had ordered Micromax to pay earlier. It ordered Gionee to deposit interim royalty payments ranged between 1.25 and 2 per cent of the sale price of Gionee's products using Ericsson's alleged infringing SEPs. The High Court stuck to its earlier methodology of calculating interim royalties based upon the price of the downstream product using the infringing technology.

Two major sets of interim conclusions emerge from the preliminary decisions of the Delhi High Court and CCI. While the Delhi High Court agrees that the methodology of calculating interim royalties, during the pendency of the suit, is to look at comparable

2705 Best IT World (India) Private Ltd. v Telefonaktiebolaget LM Ericsson (2015) Competition Commission of India, Case 4 of 2015.

2706 Telefonaktiebolaget LM Ericsson v Gionee Communication Equipment Co. Ltd & Another (2013) Delhi High Court, Interim Application No. 17578 of 2013, CS (OS) 2010 of 2013.

licenses and also finds a royalty base linked with the price of the downstream product incorporating the licensed technology as FRAND compliant, CCI takes an entire different view in its *prima facie* orders. CCI has found that such a royalty base which has no connection with the value of the licensed technology is unfair and amounts to excessive royalties. Further, the use of non-disclosure agreements has also been considered by CCI as evidencing potential antitrust violation.

It is important to consider these different legal viewpoints. In my opinion, the Delhi High Court reasoned that the retail value of a multi-component product, like a mobile phone, is derived from the combinatorial interaction of its multiple component parts – each generating complementarity effects, enhancing the value of the final product. Thus the value of each component should reflect the complementarity effects created by the interaction of such components with other technologies embedded in the standard and transcend the mere arithmetic sum of the value of the individual components themselves. Such a royalty base also factors the opportunity costs incurred by the SEP holder in licensing an SEP rather than manufacturing the downstream product itself.

CCI's interim orders neglects to consider practical business realities of patent licensing negotiations, holding that execution of a non-disclosure agreement – to protect the SEP holder's proprietary information – was discriminatory and evidenced Ericsson's anti-FRAND licensing practices. Fortunately, the Delhi High Court in its interim orders has differed from CCI's aberrative legal reasoning, holding that a non-disclosure agreement was a pre-requisite in every licensing deal and especially in patent licensing negotiations.

Moreover, CCI failed to examine if the FRAND complaints against Ericsson were being brought about without an attempt on part of the complainants to negotiate a FRAND license in good faith. The licensees while pretending to continue FRAND negotiations with Ericsson had initiated retaliatory proceedings before CCI and other IPR related regulatory authorities to gain leverage in negotiations. The Delhi High Court found the licensees to be acting in bad faith, evidencing an unwillingness to negotiate a FRAND license before commencing the commercial exploitation of Ericsson's SEPs. The court following judicial trends of US and European courts held that SEP royalty rates required good-faith negotiations between the licensees and the SEP holder and has permitted Ericsson interim injunctory relief in almost all proceedings initiated against it.

The fact that CCI's interim injunction accommodates retaliatory tactics of SEP users who have consistently and in bad faith rejected FRAND terms, could have a chilling effect on the incentive of a SEP holder to innovate. If the only means available to an SEP holder (to compel an SEP user to accept to take a FRAND license) is to seek an injunction against the unauthorised and illegal commercial exploitation of an SEP and run the concomitant risk of being found to abuse a dominant position with the ensuing risk of potentially large antitrust fines, it will deter SEP holders from seeking such injunctory relief, diminishing the value of their patents and their incentive to innovate. This blurring of lines between legitimate litigation strategies of an SEP holder and anti-competitive market behaviour can negatively affect how SEP holders will choose to participate in the Indian

technology markets, affecting innovation and growth of the industry, especially that of India's telecommunication industry.

10.7.4.2.3.2. CCI's Jurisdiction to review FRAND violations

Ericsson challenged CCI's jurisdiction to investigate the company's SEP licensing practices before the Delhi High Court in 2014.²⁷⁰⁷ Ericsson claimed that the dispute was essentially a patent dispute, and that the Patents Act provided the remedy of compulsory licensing and that it provides for adequate mechanism to balance the rights of the patentee and other stakeholders.

The Delhi High Court was concerned with the detailed conclusions reached by CCI in its *prima facie* orders. The court was concerned that in reaching such detailed conclusions, CCI had acted beyond the scope of section 26(1) of the Competition Act, which allows CCI to form a *prima facie* opinion, to cause a further investigation of the complaint by the DG, but does not allow CCI to examine merits of the allegations.

The Delhi High Court finally dismissed Ericsson's jurisdictional challenges on the ground that the remedies for abuse of patent rights provided under the Patents Act and those under the Competition Act are different in nature. While the Patents Act, while providing a remedy of compulsory licensing, provides a remedy *in personam*, the remedies available under section 27 of the Competition Act, including monetary penalties and cease-and-desist orders, were remedies *in rem*. Thus, the court concluded that the remedies under the two legislations were not irreconcilably inconsistent, as claimed by Ericsson, and that simultaneous legal proceedings under both the legislations are not mutually exclusive.

Ericsson had also raised an objection to CCI's jurisdiction on the ground that there was no *prima facie* abuse of dominance as Ericsson was exercising its legitimate rights as a patent holder. The Court extensively referred to US cases like *Rambus Inc.*²⁷⁰⁸ (FTC 2006) and EU cases such as *Motorola*²⁷⁰⁹, *Huawei Ltd. v ZTE*²⁷¹⁰ to conclude that the pressure of legal proceedings, filing of an injunction, could give rise to abuse of dominance and CCI has legitimate jurisdiction to review such a violation under section 4 of the Competition Act. The Delhi High Court noted:

"In view of the aforesaid, there is good ground to hold that seeking injunctive reliefs by an SEP holder in certain circumstances may amount to abuse of its dominant position. The rationale for this is that the risk of suffering injunctions would in certain circumstances, clearly exert undue pressure on an implementer and thus, place him in a disadvantageous bargaining position vis-a-vis an SEP holder. A patent holder has a statutory right to file a suit for infringement; but as stated earlier, the Competition Act is not concerned with rights of a person or an enterprise but

2707 Telefonaktiebolaget LM Ericsson v Competition Commission of India (2014) Delhi High Court, W.P. (C) 1006 of 2014.

2708 Rambus Inc. (2006) Federal Trade Commission 142 FTC 98.

2709 Case AT. 39985 Motorola—Enforcement of GPRS SEPs (2014) OJ 344.

2710 Case C-170/13 Huawei Technologies Co. Ltd v ZTE Corp. EU:C:2015:477.

the exercise of such rights. The position of a proprietor of an SEP cannot be equated with a proprietor of a patent which is not essential to an industry standard. While in the former case, a non-infringing patent is not available to a dealer/manufacturer; in the latter case, the dealer/manufacturer may have other non-infringing options. It is, thus, essential that bargaining power of a dealer/manufacturer implementing the standard be protected and preserved.”²⁷¹¹

The Delhi High Court noted that Ericsson, besides suing Micromax and Intex for infringement and damages, had also allegedly threatened Micromax with complaints to Securities Exchange Board of India (SEBI), India’s capital markets regulator, while Micromax was in the process of seeking SEBI’s permission to float a public offer of its shares. The court concluded that such conduct, if found to be true, being directed towards an SEP licensee to accept non-FRAND terms, would amount to an abuse of dominance.

It was widely reported in March 2018²⁷¹² that Micromax and Ericsson had signed a global patent license and Micromax has written to CCI, withdrawing its earlier complaint. However, as mentioned earlier, CCI’s jurisdiction is a jurisdiction *in rem*, and such withdrawal does not obligate CCI to dismiss its investigations into alleged market abusive practices of Ericsson.

10.7.4.2.4. China

As we have discussed in the injunctive relief study, the Chinese authorities and courts have addressed the SEP pricing issue in several occasions. Amongst the established judicial decisions and enforcement cases, *Huawei vs. InterDigital* and *Qualcomm* are most significant ones setting legal tests and precedents. The approach adopted by these cases was then incorporated by the draft IP antitrust guidelines.

10.7.4.2.4.1. Huawei v InterDigital case

In October 2013, the Guangdong High Court, in its capacity as the appellate court, ruled on the two lawsuits brought against InterDigital by Huawei in parallel in 2011.

InterDigital, the American company which designs and develops advanced technologies for wireless communications filed a patent infringement complaint against Huawei to the United States International Trade Commission, and brought a parallel lawsuit in a United States District Court in July 2011.²⁷¹³ In December 2011, Huawei, in turn, filed two complaints based on different causes of action against InterDigital before the Shenzhen Intermediate People’s Court.²⁷¹⁴

2711 *ibid*, para 199.

2712 Gulveen Aulakh, ‘Micromax to take global patent license from Ericsson’ The Economic Times (14 March 2018) <<https://economictimes.indiatimes.com/news/company/corporate-trends/micromax-to-take-global-patent-licence-from-ericsson/articleshow/63293517.cms>>.

2713 *InterDigital Communications LLC et al. v. Huawei Technologies Co. Ltd. et al.*, No. 1:11-cv-00654 (D.Del. 2011).

2714 *Shen Zhong Fa Min Chu Zi*, No. 857 and (2011); and *Shen Zhong Fa Min Chu Zi*, No. 858 (2011).

In one case, Huawei claimed that InterDigital had charged excessive royalties in violation of the FRAND obligation InterDigital bore as the SEP owner, and, on this basis, it requested the court to lower the royalty rate.²⁷¹⁵ In the other case, Huawei submitted that InterDigital had engaged in an abuse of a dominant position by imposing excessive royalties, discriminatory licensing terms and unreasonable licensing conditions, by tying and by refusing to deal with Huawei by way of seeking an injunction before the United States International Trade Commission and the United States court.²⁷¹⁶

In the first case alleging violation of FRAND principles, Huawei petitioned to the court for a statutory determination of a FRAND royalty rate applicable to the licensing of SEPs to it by InterDigital. The court found that InterDigital voluntarily participated in forming the relevant ISO standards and committed to license its SEPs on FRAND terms. The court considered that, in doing so, InterDigital should have foreseen that its SEPs would have also been incorporated into Chinese standards due to consistency requirements. As such, the court considered that whilst InterDigital did not directly participate in the formation of the Chinese standards, it was nevertheless obliged to grant a licence to Huawei on a FRAND basis. The court further set a FRAND rate capped at 0.019% of the actual product selling price. InterDigital appealed, and the Guangdong High Court upheld the Court of First Instance's ruling.

In the second case alleging an abuse of dominance, Huawei claimed that InterDigital had abused its dominant position in the licensing of SEPs for 3G wireless communications, and on that basis, Huawei requested RMB 20 million (approximately USD 3 million) in damages. The Court of First Instance held that InterDigital had violated its FRAND commitments and abused its dominant position by charging excessive royalties, refusing to deal with Huawei, tying and discriminatory treatment. It further ordered InterDigital to cease the misconduct and awarded the damages Huawei claimed. However, the court rejected InterDigital's claim that the package combining Chinese SEPs with non-Chinese SEPs licensed to Huawei by InterDigital constituted an abuse of a dominant position.

Both parties appealed, and the Guangdong High People's Court ruled in October 2013, affirming all of the Shenzhen court's rulings. Interestingly, InterDigital had argued that whilst it held a large number of SEPs under the WCDMA, CDMA200, TD-SCDMA standards for 3G communications technologies (which were at issue in the case), the relevant product market should also include the 2G and 4G standards as both are substitutable with the 3G standard. However, the Guangdong High Court rejected this argument, affirming the finding of the Court of First Instance. Specifically, the appellate court considered that a licensee could arguably switch with relative ease from one technology to another at the time the standard was set, but such switching would become increasingly difficult as time passes because of the increasing resources the licensee would have put into the standard it had chosen. Huawei was considered to have already made a significant early-stage contribution in order to implement the 3G standard and such investment could not be withdrawn, whilst switching to another standard from the 3G

2715 Yue Gao Fa Min San Zhong Zi, No. 305 (2013).

2716 Yue Gao Fa Min San Zhong Zi, No. 306 (2013).

standard would not only result in the loss of early-stage investment but would also result in significant switching costs and market risks.

10.7.4.2.4.2. Qualcomm case

The SEP royalty issue is well-knowingly touched, although through an indirect way, by the Chinese antitrust authority (then NDRC)'s decision against Qualcomm.²⁷¹⁷ On 9 February 2015, the NDRC issued a decision against United States semiconductor giant, Qualcomm, imposing a record penalty of RMB 6.088 billion (approximately USD 975 million), which equated to approximately 8% of Qualcomm's 2013 China revenue, and imposed a set of remedies around the company's patent licensing practices. The *Qualcomm* case marked a new record for the highest individual fine in China and it by far exceeded the previous largest fine imposed by the NDRC under the AML in a single case²⁷¹⁸ and against a single company.²⁷¹⁹

Qualcomm was found to have abused its market dominance in SEP licensing markets by, amongst others, engaging in excessive pricing. By asserting an excessive price is levied to the implementers, the conceptually challenging question of pricing royalty, or at least defining pricing parameters, was facing the Chinese authority.

In the Qualcomm decision, the NDRC however did not set a specific royalty rate for Qualcomm's SEP licensing. Rather, the authority established its theory of unfairly high royalties by weighing the following three factors: (1) Qualcomm refused to disclose its patent list despite the fact that there were expired patents included in its portfolio licensed to the implementers; (2) Qualcomm forced implementers to grant cross-license on a free-of-charge basis; and refused to deduct the royalties regardless of the value of the patents reversely licensed; and (3) Qualcomm charged relatively high royalty fees by unreasonably use the net sale price of the whole devices which incorporated technologies irrelevant Qualcomm patents.

NDRC's decision as such dodged the intrinsically difficult problem of determining the royalty level, it rather asserted that an excessive pricing may not necessarily only stem from the royalty amount itself, but a combination of different factors. The authority's decision also did not contain an explicit remedy on pricing but accepted Qualcomm's offer as a half-way compromise to use 65% of the net sale price of the devices as the base of calculating royalties.

Similarly, in the *Huawei v. InterDigital* case, the Guangdong High Court found that Inter-Digital charged Huawei excessive royalties on the grounds that the royalties were clearly

2717 http://www.ndrc.gov.cn/gzdt/201503/t20150302_666209.html

2718 Prior to the Qualcomm case, the largest fine imposed by the NDRC in a single case was RMB 832 million (approximately USD 136 million) imposed in the auto parts cartel. See NDRC, '日本十二家企业实施汽车零部件和轴承价格垄断被国家发展改革委罚款12.35亿元' (Press release, 20 August 2014) press release, <http://www.sdpc.gov.cn/fzgggz/jgjdyfld/jjszhdt/201408/t20140820_622757.html> accessed 17 January 2018.

2719 Prior to the Qualcomm case, the largest fine imposed by the NDRC against a single entity was RMB 290 million (approximately USD 47 million) imposed against Sumitomo Electric. See the Administrative Penalty Decision of the National Development and Reform Commission of the People's Republic of China, Fa Gai Ban Jia Jian Chu Fa (2014) No. 9.

higher than were charged to other multinational device manufacturers.

10.7.4.2.4.3. The IP Guidelines

The factors considered by the NDRC and the Guangdong High Court have largely been codified into the 2017 Draft IP Guidelines. In the draft, it is explained that whether or not royalties are considered to be excessive should be determined by taking account of: (1) the method of calculating the royalties and the contribution of the IP to the value of the relevant product; (2) the licensing commitments attached to the IP; (3) the royalties charged historically and comparable royalties; (4) whether the IP holder charges royalties beyond the IP's geographical or product scope; (5) in the case of licensing package, whether the IP holder charges royalties for expired or invalid IP; and (6) whether the IP holder forces, by injunctive relief, the licensee to accept the royalties it proposes.²⁷²⁰

10.8. Upper layer standards – standards for data

In order to function properly, IoT devices will gather large amounts of data from their users. Such data will be both personal, relating to identifiable individuals, and non-personal, where the information about individual person cannot be discerned.²⁷²¹ However, for the seamless functioning of IoT system such data will need to be shared among different manufacturers of IoT equipment. Precisely how the sharing and interoperability of IoT data is to be achieved remains an open question.

10.8.1. Access to data issues

When discussing access to data, a distinction should be made between personal and non-personal data. They are governed by different legal regimes with different conditions for their sharing and re-use.

The legal regime for the use of personal data is regulated in the EU by the General Data Protection Regulation (GDPR) which applies to any sharing of personal data. The GDPR provides six legal bases for lawful processing of personal data, most relevant in this case being the consent of the data subject.²⁷²² A consent of the data subject must be freely given and relate for specific purposes.²⁷²³ A data protection regime therefore means that companies are not free to share personal data of their users. They must respect

²⁷²⁰ Anti-Monopoly Commission, 'Anti-monopoly guidelines on abuse of intellectual property rights' (Draft, 2017), art. 14.

²⁷²¹ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, L 119/1 (GDPR) Article 4, point 1 ('personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.

²⁷²² Ibid, Article 6.

²⁷²³ Ibid, Article 7.

the conditions of the GDPR and must obtain prior informed consent of their users for sharing personal data with other IoT manufacturers.

On the other hand, users have the right to data portability by Article 20 of the GDPR, under which they are allowed to receive their own personal data held by a data controller and to transfer such data to another controller.²⁷²⁴ The aim of this provision is to facilitate switching between data-driven services and provides data subjects some degree of protection against data-induced lock in.²⁷²⁵ It allows data subject, for example, to switch their data from one platform to another. However, this provision is not designed to provide full interoperability and continuous data sharing between devices. It applies only once data subject request portability and only for a particular transfer. It is thus not possible to use Article 20 as a basis for achieving full data interoperability between different IoT devices.

In the US, there is no single principle data protection regulation. While, on the federal level, there are several sector specific regulations, several states provide data protection for individual consumers. Generally, as a point of departure – both in reference to federal statutes and state laws – individuals have a right to data protection. However, such protection can be limited or eliminated by statute, contracts or through disclosure.

An example of sector specific regulation that stipulates a right to port data is the Federal Health Insurance Portability and Accountability Act of 1996 (HIPAA). It stipulates a right to access and port data between health providers and requires that standards for the electronic exchange are published and available.

Besides personal data, IoT devices may collect non-personal data which relates to environment or to users' activity without precise identification of an individual. For example, devices may generate data on road traffic conditions and soil activities or collect aggregated anonymised data on their users' activities. It is currently open whether non-personal data is protected by intellectual property rights.²⁷²⁶ Non-personal data may be protected by trade secret right,²⁷²⁷ if it's not publicly available and holds a commercial value, or a *sui generis* database right protection.²⁷²⁸ In any event, non-personal data can also be protected by contractual rights of data controllers. Access to such data can be granted on a contractual basis.

In that regard, the EU Commission is considering the possibility of sharing the access to non-personal data between businesses. In 2017 the EU Commission published a Com-

2724 Ibid, Article 20.

2725 See Jacques Cremer, Yves-Alexandre de Montjoye, Heike Schweitzer, 'Competition Policy for the Digital Era' (2019) p. 81.

2726 For discussion see: Björn Lundqvist, 'Big Data, Open Data, Privacy Regulations, Intellectual Property and Competition Law in an Internet-of-Things World: The Issue of Accessing Data' in M. Bakhoun et al. (eds.), *Personal Data in Competition, Consumer Protection and Intellectual Property Law* (Springer 2018); Josef Drexler, 'Data Access and Control in the Era of Connected Devices Study on Behalf of the European Consumer Organisation BEUC' (2018); Josef Drexler, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access, 8 (2017) JIPITEC 257.

2727 Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, OJ L 157.

2728 Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77.

munication entitled “Building a European Data Economy”. In relation to access to data, the Commission explored the idea where access to machine generated data would be granted against remuneration.²⁷²⁹ The Communication noted that: “A framework potentially based on certain key principles, such as fair, reasonable and non – discriminatory (FRAND) terms, could be developed for data holders, such as manufacturers, service providers or other parties, to provide access to the data they hold against remuneration after anonymisation. Relevant legitimate interests, as well as the need to protect trade secrets, would need to be taken into account. The consideration of different access regimes for different sectors and/or business models could also be envisaged in order to take into account the specificities of each industry. For instance, in some cases, open access to data (full or partial) could be the preferred choice both for firms and for society.”²⁷³⁰

Following a public consultation, the Commission in 2018 published a Guidance on Sharing Private Sector Data in the European Data Economy.²⁷³¹ It recommended companies to consider voluntarily granting access to non-personal data to other businesses and, when doing so, to adhere to certain principles related to transparency, respect to each other’s commercial interests, to ensure undistorted competition, and minimise lock-in.²⁷³²

Therefore, access to personal and non-personal data generated by IoT objects is subject to principles of data protection regulations, as well as contractual will of data controllers. The next section will analyse whether competition law or sector specific regulation could provide mandatory access to data.

10.8.1.1. The role of competition law in providing access to data

There is currently an ongoing debate about the applicability of competition law for providing access to data sets.²⁷³³ However, it would seem that competition law is not an adequate instrument to ensure widespread interoperability and data sharing between IoT devices for a number of reasons. This is because competition law only applies to dominant undertakings and sharing of data in IoT context would be needed between large number of companies that are not in a dominant position. For example, a self-driving car would be information on traffic conditions from road infrastructure as well as from other (self)driving vehicles, the manufacturers of which may not be in a domi-

2729 European Commission, Towards a common European data space (Communication), COM(2018) 232 final.

2730 Ibid., page 13.

2731 European Commission, Guidance on Sharing Private Sector Data in the European Economy (Communication), SWD(2018) 125 final.

2732 Ibid, p.3.

2733 See Jacques Cremer, Yves-Alexandre de Montjoye, Heike Schweitzer, ‘Competition Policy for the Digital Era’ (2019); Björn Lundqvist, ‘Big Data, Open Data, Privacy Regulations, Intellectual Property and Competition Law in an Internet-of-Things World: The Issue of Accessing Data’ in M. Bakhoun et al. (eds.), *Personal Data in Competition, Consumer Protection and Intellectual Property Law* (Springer 2018); Autorite de la Concurrence and Bundeskartellamt, *Competition Law and Data* (2016); OECD, ‘Big Data: Bringing Competition Policy to the Digital Era’ (2016); Inge Graef, *EU Competition Law, Data Protection and Online Platforms: Data as Essential Facility* (Kluwer Law International 2016).

nant position. Therefore, competition law could hardly impose a general access remedy needed in the IoT context. Furthermore, a data would need to be indispensable in order to compete on a downstream market, which may not always be the case.²⁷³⁴ Finally, competition enforcement is generally slow, unpredictable and conducted on a case-by-case basis, while intervention in the IoT would be needed to be rapid and standardised in order to ensure an equal level playing field between companies. There is also a problem of enforcement of competition law-imposed access remedy, with competition authorities turning into price regulators.²⁷³⁵

Nevertheless, while maybe not adequate as a general solution in the IoT context, competition law has been applied in several instances by national competition authorities to ensure access to data held by dominant companies. For example, French competition authority investigated Cegedim, a leading provider of medical information databases in France, which refused to sell its main OneKey database to customers using the software of its competitor.²⁷³⁶ The French Competition Authority considered such behaviour as discriminatory and concluded that, given that OneKey was the leading dataset on the market for medical information databases and that Cegedim was a dominant player, such a discriminatory practice had the effect of limiting Euris's development and was anti-competitive. Also in GDF Suez case, French competition authority adopted interim measure requiring Suez, a leading gas supplier, to grant its competitors access to some data it collected as a provider of regulated offers, in particular consumption data.²⁷³⁷ The aim of this interim measure was to allow all suppliers to have the same level of relevant information to make offers to consumers as no public information or private database exists on households subscribing to gas contracts.

U.S. Antitrust Law generally does not impose a unilateral duty on firms to share assets, including data, with competitors. The Supreme Court has never recognized the so-called essential facilities doctrine, and U.S. courts have consistently expressed scepticism of the notion that firms have an overarching duty to deal with competitors. The somewhat dated *US Aspen Skiing* case²⁷³⁸ is one of very few antitrust cases where the Court

2734 See Commission, 'Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings' 2009/C 45/02, para 81; Case T-201/04 Microsoft v Commission, ECLI:EU:T:2007:289, para 332.

2735 The difficulty in crafting and monitoring the compliance with interoperability remedy can be seen in Microsoft saga by the European Commission. There, the European Commission found that Microsoft abused its dominant position by refusing to provide interoperability information of its Windows Server operating system and ordered Microsoft to provide interoperability information to third parties under reasonable and non-discriminatory conditions. The European Commission later found that Microsoft was charging non-FRAND prices for access to interoperability information and imposed additional fine of EUR 899 for non-compliance. See: T-167/08 Microsoft v Commission; Commission, 'Antitrust: Commission imposes € 899 million penalty on Microsoft for non-compliance with March 2004 Decision' (Press Release) (2008) IP/08/318.

2736 http://www.autoritedelaconcurrence.fr/user/standard.php?lang=en&id_rub=592&id_article=2403

2737 <https://www.twobirds.com/en/news/articles/2014/france/french-competition-authority-orders-gdf-suez-to-give-competitors-access-to-customer-data>

2738 US Supreme Court, *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985). Wolfgang Kerber and Heike Schweitzer, 'Interoperability in the Digital Economy' (2017) 8 JIPITEC 39; See also Marina Lao, 'Aspen Skiing and Trinko: Antitrust Intent and "Sacrifice"' (2005), 73 Antitrust Law Journal, 171 et seq.

imposed an obligation to collaborate, while the more recent Supreme Court case *Trinko* seems to severally limit – or even do away – with a duty to collaborate with competitors under US Antitrust Law.²⁷³⁹

The US antitrust agencies have had occasions to consider the competitive significance of data in the context of merger reviews. For example, the Thomson and Reuters, were two of the three largest providers of financial data to institutions like investment banks and trading firms, proposed to merge in 2008. The Antitrust Division concluded that the transaction would have led to higher prices and reduced innovation, and so it required Thomson to divest copies of three financial datasets in order to proceed with the acquisition.²⁷⁴⁰ However, apart from the merger scenarios, US Antitrust Law seems non-applicable for accessing competitors data.

As to BRICS countries, in Russia the issue of mandatory data access under competition law was raised in a course of the public debate of the Fifth Antimonopoly Package intended to adapt competition law to digital economy.²⁷⁴¹ The first version of the bill, drawn up by the Federal Antimonopoly Agency (FAS of Russia) in cooperation with HSE-Skolkovo Institute for Law and Development, included several provisions about big data. According to the bill, the relevant data collection and use are additional factors that shall be taken into account in the competition analysis related to the digital multi-sided markets. It also introduced a new subject matter for authority's binding orders (so-called "prescriptions"): the authority has the right to issue an order "on the compliance with economic, technical, information and other requirements to eliminate discriminatory conditions for access to data, including consumer data, as well as to prevent the creation of such discriminatory conditions".²⁷⁴²

Over the last few years Russia has made a good progress in modernizing the existing legislation in line with the international best practices related to digital economy. At the same time the process of regulatory reform in Russia has its own characteristics. With the development of big data analytics, the legal aspects of data management, data ownership and data sharing have become a hot topic for Russian companies. However, the current dialogue between the business and the state is focused mostly on reduction of regulatory burden for innovative companies. In this context, the new rules concerning mandatory data access didn't find support from the business community. FAS of Russia

2739 *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004)

2740 Discussed in Bernard A. Nigro Jr., "Big Data" and Competition for the Market' available at: <https://www.justice.gov/opa/speech/file/1017701/download>. See also Justice Department Requires Thomson to Sell Financial Data and Related Assets in Order to Acquire Reuters (February 19, 2008), available at: https://www.justice.gov/archive/atr/public/press_releases/2008/230250.htm.

2741 Draft Federal Law "On Amendments to the Federal Law on Protection of Competition and Amendments to the Code on Administrative Offences" (the 5th Antimonopoly Package). The modified version of the draft law version of the draft law dated October 17, 2018, was published on the Federal Antimonopoly agency official site: <<http://en.fas.gov.ru/documents/documentdetails.html?id=15345>>.

2742 Official text of Fifth antimonopoly package, including the first version, is available at: <<https://regulation.gov.ru/projects#npa=79428>>.

has decided to revisit the issue of data dominance and data access at a later stage when the newly drafted regulation in the field of data management would be put in place.

At the same time, the Federal Law on Protection of Competition does not prevent the competition authority from taking into account the adverse effects of data monopolization on competition. FAS of Russia may treat anticompetitive data use in the same way as it treated the limitations of access to the relevant information in the case *Kaspersky v. Microsoft*, resolved in 2017.²⁷⁴³ Kaspersky filed a complaint against Microsoft, arguing that Microsoft gave the company, as well as other independent antivirus software developers, only seven days before the release of Windows 10 to make their software compatible with the new operating system. As a result, the developers didn't succeed to adjust their antivirus products timely to meet customers' expectations. The agency found that Microsoft had abused its dominant position. According to the decision, the negative consequences for competition were caused not by the individual actions of Microsoft Corporation to shorten the time for providing RTM versions of Windows 10, but by a combination of actions that led to restriction of competition in the antivirus software market in the territory of the Russian Federation. Microsoft complied with the warning issued by FAS and made the appropriate changes to its Antimalware Platform Requirements to open timely access to data, related to new operating system (OS) releases, for independent developers.²⁷⁴⁴ Similarly, in future cases concerning anticompetitive data policy of digital platforms the Russian competition authority will analyze how the collection and use of data by the dominant entity effects the related downstream markets.

Besides the abuse of dominant position, FAS intends to pay special attention to data access issues in merger control. In 2018 FAS approved *Bayer/Monsanto* deal under the certain conditions, which consisted essentially of behavioral remedies aimed at promoting potential competition on the part of Russian companies.²⁷⁴⁵ The imposed conditions included, *inter alia*, obligations to provide Russian companies engaged in the development of agricultural software and applications with non-discriminatory access to digital farming platforms, including access to historical data related to the Russian Federation, as well as to the data that will be collected by Bayer AG after commercialization of its program products on the territory of Russia.²⁷⁴⁶ *Bayer/Monsanto* deal is the first case of its kind, and is likely to serve as a model for future merger investigations.

2743 FAS Decision on violation of antitrust laws of August 15, 2017, on the case No. 1-00-168 / 00-11-16. <https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ag-56549-17/>

2744 The changes concerned the following sections of the Requirements: "Use of Documented Windows Interfaces and Data Structures by Antimalware Apps" and "Windows Feature Release Timeline".

2745 FAS Decision on the results of the consideration of the petition of the company "Bayer AG" of April 20, 2018, No. IA / 28180/18 dated 04/20/2018. <https://br.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/ia-28180-18/>

2746 The FAS of Russia approved the Bayer/Monsanto Deal. 23.04.2018. <<https://en.fas.gov.ru/press-center/news/detail.html?id=52952>>. For more information see also: OECD. Annual Report on Competition Policy Developments in the Russian Federation. DAF/COMP/AR(2019)51. (OECD,2019). P.23-25.

Another barrier to address data access issue by competition law is IPR immunities.²⁷⁴⁷ There is a trend to protect big data by database producer neighboring rights,²⁷⁴⁸ which makes the competition law intervention next to impossible. The general clarification of the intersection between competition law and intellectual property law and the specific issue of abandoning IPR immunities are still under discussion.

In China, the competition authority has not yet addressed data issue as an independent form of theory of harm. However, it did emphasize the importance to data, or technology as such in its merger clearances by imposing behavioural remedies upon merging enterprises. These remedies, having its general background of guarantee a continued and non-discriminatory supply to Chinese downstream operators. For example, in *Bayer/Monsanto*, the authority requires the merged entity to provide access of its agriculture development app to Chinese downstream operators under a FRAND term in five years post-closing. In *Rockwell Collins/UTC*, the Chinese authority requires the company to maintain the interoperability and mutual-accessibility in terms of data transmission of its A664 terminal system. There is an ongoing debate among academia and practitioners that further importance should be adhere to date when reviewing merger cases in TMT and ICT sectors. Such proposal, however, is still in its infancy for lack of practicality to effectively measure the quality/importance of data (instead of the mere quantity). Besides, putting data into remedy consideration is again intertwined with the application of essential facility doctrine and the universal dealing obligation, which both need case-by-case analysis instead of a one size apply to all principle. Rather, the current approach adopted by the Chinese authority is of more agility (although lack for predictability) for addressing case-specific data issue by behavioural commitments.

No developments are observed in other BRICS countries.

10.8.1.2. Sectoral measures

With competition law providing an unsatisfactory answer to data sharing in the IoT, there have call for specific legislation to regulate standardised access to data.²⁷⁴⁹ While there is currently no overarching legislation to date, there are some sectoral regulations that provide access to data in certain sectors.

For instance, the revised Directive on Payment Services in the Internal Market of 25 November 2015 sets out that account servicing payment providers, such as banks, must allow third parties to obtain real-time data relating to customers' accounts on a non-dis-

2747 See part 4 of article 10 and part 9 of article 11 of the Federal Law on Protection of Competition Law. English translation of the law is available at the Federal Antimonopoly agency official site: <http://en.fas.gov.ru/documents/documentdetails.html?id=14737>

2748 The new database producer rights were introduced in the part 4th of the Civil Code of Russian Federation in 2008, thus creating the analog of the European sui generis database right covered by related rights protection.

2749 There seems to be a wide support in the literature for some sort of sector specific legislation. See Jacques Cremer, Yves-Alexandre de Montjoye, Heike Schweitzer, 'Competition Policy for the Digital Era' (2019) p. 10; Digital Competition Expert Panel, 'Unlocking Digital Competition' (March 2019); Mathew Heim, Igor Nikolic, 'A FRAND Regime for Dominant Digital Platforms' (2019) 10 JIPITEC 1; Josef Drexler, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access, 8 (2017) JIPITEC 257.

criminary basis (including without any discrimination in terms of charges, timing and priority).²⁷⁵⁰ Furthermore, the Recital 16 of the eCalls Regulations provides 112-based eCall in-vehicle system should be accessible for a “reasonable fee not exceeding a nominal amount and without discrimination to all independent operators for repair and maintenance purposes” and calls for further legislation in this field.²⁷⁵¹

Interestingly, the new European Electronics Communications Code (EECC) includes an obligation to provide interoperability between “interpersonal communication services”, which reach a significant level of coverage and user uptake.²⁷⁵² This provision may arguably be used by national regulatory authorities to impose an obligation on widely used communication applications or social platforms to interoperate.²⁷⁵³ However, such regulatory interventions may be possible only where end-to-end connectivity is endangered and only to the extent necessary to ensure connectivity between end-users.²⁷⁵⁴ Nevertheless, this provision represents an evolution in providing a regulatory solution to ensuring interoperability between particular types of platforms that have a significant reach, though it may not be dominant in the competition law sense. These sectoral measures may represent a first step towards a more comprehensive regulation of data sharing in the future.

Regarding BRICS countries, in China, the discussion has not touched the data sharing mechanism as such, in terms of data obtained or generated by private companies. However, the government is now promoting the sharing or accessibility of government obtained data in (public-funded) fundamental scientific research and public services. It is also notable that the Chinese government targets to establish a “big data” platform for healthcare sector so as to enhance the national healthcare services. Meanwhile, it is also worth-noting that the Chinese Internet Security Law imposes universal dealing obligations and special security protection obligations over platforms and systems deemed as “key fundamental facilities”. It is widely understood that key fundamental facilities’ obligation includes, inter alia, the obligation of providing access to essential data access to the public or the downstream business. However, this clause has not to date applied. In that sense, the detailed implication on data sharing by such a mechanism still remains unanswered.

However, no sectoral measures regulating access to data are currently available in other BRICS countries.

2750 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Text with EEA relevance, Articles 64-68.

2751 Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC, OJ L 123.

2752 Directive (EU) 2018/1972 of 11 December 2018 establishing the European Electronics Communication Code, L 321/36, Article 61.2.c.

2753 See Wolfgang Kerber, Heike Schweitzer, ‘Interoperability in the Digital Economy’ (2017) 8 JIPITEC 39, 50-51.

2754 EECC, Article 61.2.c.

10.8.2. Data pools

Data pools are initiatives by companies to share their data on a given market or industry.²⁷⁵⁵ Companies are increasingly recognising the benefits of open sharing of information and are joining private initiatives for sharing data between themselves. For example, Google, Facebook, Microsoft and Twitter in 2017 formed the Data Transfer Project with the aim of building a common framework with open-source code that can connect any two online service providers, enabling a seamless, direct, user initiated portability of data between the two platforms.²⁷⁵⁶

Data pools are yet unexplored area of competition law. On the one hand, they can provide significant efficiencies to their members by allow firms to produce better products or services than they could develop based on their own data alone. Data pools may also help firms to offer complementary, value- added services and foster entry into neighbouring markets.²⁷⁵⁷ For example, access to in-car data or to smart home data may allow firms to develop complementary applications.

On the other hand, data pooling can also lead to anti-competitive effects. Data pools may lead to collusion if they enable exchanges of commercially sensitive information such as costs or prices. Depending on the size and strength of data pool, it may discourage companies from differentiating and improving their own data collecting, leading to loss of quality and innovation. Finally, when a pool has market power it may be under a duty to give third parties access to data as well.²⁷⁵⁸

There are yet no clear guidelines how to assess data pools from a competition law perspective. The ECJ in *Asnef-Equifax* case analysed a register of information between Spanish financial institutions on the solvency of customers.²⁷⁵⁹ It held that such credit-worthiness registries are not restrictions by object,²⁷⁶⁰ and whether they constitute a restriction by effect will depend on “the economic and legal context in which the registers exist, and in particular on the economic conditions of the market as well as the particular characteristics of the register”.²⁷⁶¹ On the facts of the case, it held that data sharing arrangement also had no anti-competitive effects if the relevant market is not highly concentrated, the system does not provide lenders to be identified and the conditions of access and use by financial institutions are not discriminatory.

Therefore, the assessment of potential anti-competitive effects of patent pools would have to be carried out on a case-by-case basis. However, generally pools that share strategic and competitive information, such as price- lists, future output prediction and new innovations, should be considered at risk of being restrictions by object according

2755 See Byorn Lundquist, ‘Competition and Data Pools’ (2018) 4 Journal of European Consumer and Market Law 146

2756 <https://datatransferproject.dev>

2757 Jacques Cremer, Yves-Alexandre de Montjoye, Heike Schweitzer, ‘Competition Policy for the Digital Era’ (2019) p. 94

2758 Ibid, p. 95.

2759 C-238/05 *Asnef-Equifax* EU:C:2006:734.

2760 Ibid, para 48.

2761 Ibid, para 57.

to Article 101(1) TFEU. On the other, data pools containing technical information for the development of new products and services or facilitating interoperability between devices could be regarded as presumptively legal. However, the problem in practice would be identifying, precisely, which information falls in what category.

Commission guidelines on the assessment of technology (patent) pools may also provide a source of inspiration.²⁷⁶² The Commission considers that patent pools can produce both positive and negative effects and created a safe harbour under which the operation of patent pools falls outside of Article 101(1) TFEU altogether.²⁷⁶³ Conditions to be satisfied include participation is open to all interested technology owners, sufficient safeguards are adopted to ensure that only essential technologies are pooled and that exchange of sensitive information is restricted; the pooled technologies are licensed on a non-exclusive basis and under FRAND terms; and the parties to a pools and licensees are free to develop competing products and technologies.²⁷⁶⁴ By way of analogy, Lundquist develops a similar model under which data pools could be assessed to fall outside Article 101(1) TFEU.²⁷⁶⁵ He recommends, for instance, that only datasets essential for that objective of the pools should be included; pool members should be allowed to grant individual access to their individual datasets; the pool must be open to any interested third parties; grant-back data clauses must be limited to essential data; access to data must be granted under FRAND terms; safeguards should be provided to protect exchanges of sensitive commercial information etc.²⁷⁶⁶

Also in the US, a budding discussion regarding data pools exists, where the risk of collusion has been identified as a main obstacle for data pools to form.²⁷⁶⁷ Paul Uhler and J.H. Reichman have noted that "[t]he evidence shows that such [database] pools are very difficult to form when the value of upstream research products defies easy measurement and the relevant players in a given industry have very different agendas, as would occur when federal agencies, academic institutions, and different types of private companies are all involved. Moreover, there are far greater risks that such pools lead to collusive, anti-competitive behaviour, to the erection of formidable barriers to entry."²⁷⁶⁸

Members of US academia suggest that a proposal designed to encourage the pooling of data could succeed in being passed into law, and point to the National Cooperative Research and Production Act (NCRPA).²⁷⁶⁹ A federal law passed in 1984 that reduces antitrust liability for certain research consortia that make their activities known to the

2762 Commission, 'Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements' 2014/C 89/03.

2763 Ibid, paras 245-265.

2764 Ibid, para 261.

2765 Bjorn Lundqvist, 'Competition and Data Pools' (2018) 4 *Journal of European Consumer and Market Law* 146, 154.

2766 Ibid.

2767 Michael Mattioli, 'The Data-Pooling Problem' (2018) 32 *Berkeley Technology Law Journal* 179, 203 et seq.

2768 J.H. Reichman & Paul F. Uhler, 'A Contractually Reconstructed Research Commons for Scientific Data in A Highly Protectionist Intellectual Property Environment' (2003) 66 *Law & Contemporary Problems* 315, 403-04.

2769 Michael Mattioli, 'The Data-Pooling Problem' (2018) 32 *Berkeley Technology Law Journal* 179, 203 et seq

Department of Justice.²⁷⁷⁰ Would data pools fall inside the NCRPA, or should a similar law be passed that would *de facto* exempt data pools from Antitrust scrutiny, pooling data between competitors would be greatly encouraged and promoted.

Indeed, data pools should be scrutinized under Competition Law in analogy with R&D collaborations, rather than being compared to patent pools. Data pools imply primarily an exchange of data so to develop new forms of services and products and are not mechanisms for collecting FRAND royalty.²⁷⁷¹

Therefore, data pools represent a novel phenomenon with no clear guidance by competition authorities. General doctrines on information exchanges and existing guidelines on R&D collaborations may serve as a framework for competitive assessment of data pools, while the general structure of patent pools can be used as inspiration for setting up open data pools or even data commons.

As to situation in BRICS countries, no practice has yet been observed.

10.9. Other means for creating more competition?

One of the main problems raised by the digital revolution is the lack of a proper institutional setting organising the process of marketization and monetization of data with the development of properly functioning markets. Hence, as we have also highlighted in other parts of the report we have a missing markets problem²⁷⁷². As for what we put forward regarding personal data in other parts of this report, the development of some regime of exclusive rights or a proper property rights regime on non-personal data may offer the possible way forward.

10.9.1. Property solution

One model that was considered by the European Commission was the introduction of data producers property rights,²⁷⁷³ as a solution to avoid data lock-in and facilitate data sharing in the IoT environment. The idea was that the right to use and authorise the use of non-personal data could be granted to the data producer i.e. the owner or long-term user of a device.²⁷⁷⁴ This would hopefully clarify the legal situation on data-ownership and give more choice to the data producer by giving the possibility to users to utilise their data and contribute to the IoT environmental.

However, the creation of data producer's property right has been criticised in the literature and appears not to have been endorsed by the European Commission in the

2770 For an in-depth analysis of the NCRPA Act and the EU R&D block exemption regulation see Björn Lundqvist, Joint Research and Development under US Antitrust and EU Competition Law (Edward Elgar 2015).

2771 Björn Lundqvist, 'Competition and Data Pools' (2018) 4 Journal of European Consumer and Market Law 146, 155 et seq.

2772 See, on the problem in general, G.M. Hodgson, How mythical markets mislead analysis: an institutionalist critique of market universalism, (2019) Socio-Economic Review, mw049, <https://doi.org/10.1093/ser/mwy049>.

2773 European Commission, 'Building a European Data Economy' [Communication] COM(2017) 9 final, p. 13.

2774 Ibid.

end.²⁷⁷⁵ Kerber, for example, questions the rationale for introduction of a new IP right.²⁷⁷⁶ The main justification for IP rights is the need to secure incentives for innovators and creators, but in data-context the empirical evidence shows that companies are amassing large amounts of data and there appears to be no need for additional incentives for companies to produce and analyse data.²⁷⁷⁷ It is further pointed out that already contract law and trade secrets law provide adequate security to data-holders against unwarranted use of data.

One of the main concerns is that data-driven markets in fact need more access and not a creation of more exclusivity rights. A data producer's right would create property for the data owners with the ability to exclude others from its unauthorised use. It is questionable whether in reality data producer's right would make data-ownership more transparent and lead to reduction of transaction costs. Drexl notes that more powerful manufacturers can *ex-ante* include a clause in its contracts according to which ownership in the data will be transferred for free to the manufacturer.²⁷⁷⁸ The unequal distribution of bargaining power will not be remedied by the creation of a new IP right. Moreover, it may even increase transaction costs as now more licenses would need to be obtained in an environment with a large number of data producer's. It is unclear how this task would be undertaken, which may lead to 'data-holdup' or 'data-trolls' where data producers' refuse to license their data and later opportunistically seek to enforce and monetise them.²⁷⁷⁹

Further issues lie in the interaction between personal data protected by the GDPR and the data producer's right for non-personal data. Data producer's rights would apply only to non-personal data, defined as data which originally did not relate to an identified or identifiable natural person or data which were initially personal data, but were later made anonymous.²⁷⁸⁰ It is however difficult to make the data completely anonymous and with the advancement of new technologies and encryptions it is often possible to de-anonymise data. If data could be de-anonymised, then it cannot be considered as non-personal data and data producer's rights would not apply. Moreover, the majority of data sets consist of both personal and non-personal data (mixed datasets), for example data related to IoT devices where some of the data allow assumptions to be made about identifiable individuals (such as the presence at a particular address and

2775 For arguments cautioning against the creation of data producer's rights and potential problems in implementation see: Wolfgang Kerber, 'A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis' (2016) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2858171; Josef Drexl, 'Data Access and Control in the Era of Connected Devices' (2018) Study on Behalf of the European Consumer Organisation BEUC.

2776 Wolfgang Kerber, 'A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis' (2016) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2858171

2777 Ibid, p. 8-9.

2778 Josef Drexl, 'Data Access and Control in the Era of Connected Devices' (2018) Study on Behalf of the European Consumer Organisation BEUC p. 4.

2779 Wolfgang Kerber, 'A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis' (2016) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2858171 p. 18-19.

2780 European Commission, 'Guidance on the Regulation on a framework for the free flow of non-personal data in the European Union' [Communication] COM(2019) 250 final, p. 6.

usage patterns).²⁷⁸¹ If the non-personal data part and the personal data parts are ‘inextricably linked’, the data protection rights and obligations from the GDPR fully apply to the whole mixed dataset, even if personal data represent only a small part of the dataset.²⁷⁸² Therefore, in reality it might not be easy to identify non-personal data which is not mixed with personal data or data that cannot be de-anonymised, which limits the use of data producer’s rights.

Consequently, an alternative solution to fair access to data might be sector-specific data access rights, which will be explored in next section below.

10.9.2. Access solution

There seem to be a general need for rules regarding fair access to data. Several sector specific regulations do grant firms and competitors access to data, while as indicated above, Competition law may set high thresholds for accessing data held by a system leaders or competitors. Below some few sector specific legal systems are presented where right to access to data are included. We have explored above the different approaches followed as to the development of data commons, for instance through the free access to government data (e.g. PSI Directive) and sector-specific access rules (such as the eCall regulation) for access to non-personal data. Data portability schemes are also particularly interesting for the development of the IoT.

If the IoT causes structural changes to the industry, such as, and with the benefit from, indirect network effects and tipping, such changes should perhaps be balanced by structural rules. That could imply creating new forms of rights regarding data.

The data, the information (as such), are not currently covered by property rights, regardless of how private and valuable it is.²⁷⁸³ No one owns personal data, although the ‘data subject’ in the certain jurisdictions such as the EU retains some rights in regards to the data, under the EU General Data Protection Regulation.²⁷⁸⁴ This notwithstanding, if an individual piece of data (personal or non-personal) fulfils the requirement for intellectual property rights, it can be covered by copyright, for instance (3rd party copyright, or copyright held by firm that is also a gatekeeper for data access on the server).²⁷⁸⁵ Moreover,

2781 Ibid, p. 8.

2782 Ibid, p. 9.

2783 There are authors who propose the recognition of ownership rights for consumers to the data they produce, e.g., Hoofnagle and Whittington, ‘Free: Accounting for the Costs of the Internet’s Most Popular Price’ (2014) 61 UCLA Law Review, 606-670. Moreover, there is a discussion regarding how to conceptualize privacy, sphere theory, data category theory, ownership theory, empirical theory, and what seems to be relevant ‘decisional autonomy.’ see. Greenstein, *Our Humanity Exposed*, Stockholm, Stockholm University (Doctoral thesis, 2017), 187 et seq.

2784 There are some rights connected to personal data in Articles 18-20 of the General Data Protection Regulation, such as the right to have data corrected, the “right to be forgotten” and the right to data portability. In reference to data portability, the right is limited, making it less attractive for consumers to switch social websites. Cf. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance) OJ L 119, 4.5.2016, p. 1-88.

2785 Moreover, the firms providing the e-ecosystem or infrastructure of the IoT will have the infrastructure covered by pat-

economic rights (ownership) to data can co-exist with personal data protection. Even though the data are personal in the sense that individuals hold rights to them under, for example a Data Protection Regulation, economic rights to the data can be held by other entities.²⁷⁸⁶

Under personal data rules, there may be a mandatory right to port data. And while the personal (or consumer) mandatory porting right is not economical, it may still serve as a source of competition.²⁷⁸⁷ In fact, it works as a consumer protection rule. Individuals have the right to port data and that right cannot be contractually eroded or derogated. However, it is regarding non-personal data, especially in reference to Industrial Internet when the discussion about property rules and a porting right have flourished. Nonetheless, generally, in academia the idea of new forms of intellectual property are shunned.

Today, a growing body of literature suggests that we would be far better off with less property rights, and less patent and copyright protection, in both duration and scope.²⁷⁸⁸ Perhaps the intellectual property system we have is worse than not having any protection at all. There is almost a general consensus on the notion that intellectual property rights need to be restricted and limited. According to Hovenkamp, this poor fit would call into question any presumption that competition policy should yield to intellectual property policy: "We know pretty well what competition is and that it should be protected. However, we hardly know what intellectual property is and if it should be protected."²⁷⁸⁹ Moreover, in the realms of data, the idea of including property rights in the IoT mix has been strongly rejected.²⁷⁹⁰

In several ways, the debate referred to above is obsolete. The gatekeepers in IoT, the e-platform economy, do not honour several of the intellectual property rights we have jointly agreed to be to all-encompassing. It seems that the system leaders in these silos or e-ecosystem will, through network effects, tipping, and contracts, and, indeed, the

ents and copyright and can also, technically, prevent access to the data. Traditionally, copyright owners resort to technical protection measures (TPMs), cf. Art 6 InfoSoc, to prevent access to the copyright-protected content. Interestingly, InfoSoc finds that not only breaching these technical protection constitutes a copyright infringement, but also that the manufacturing and sale of devices which have the primary purpose or effect of enabling such circumvention may be a copyright infringement in itself. In reference to datasets including copyright-protected data, Art. 6 InfoSoc would still be applicable. See the interesting conference paper by Ciani, 'A competition law oriented look at the application of data protection and IP law to the Internet of Things: towards a wider holistic approach,' MPI Post Doc Conference, Munich (21 October 2016).

2786 Joseph Drexel, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access' (October 31, 2016), Max Planck Institute for Innovation & Competition Research Paper, No. 16-13, 18. available at SSRN: <https://ssrn.com/abstract=2862975>

2787 Ibid. See also Samuelson, 'Privacy as Intellectual Property' (2000), 52 Stanford Law Review 1125.

2788 Adam Jaffe, Josh Lerner, *Innovation and its Discontents* (Princeton University Press, 2004), and Scotchmer, *Innovation and Incentives* (MIT Press, 2004), 74 et seq.

2789 Herpert Hovenkamp, 'Signposts of Anti-competitive Exclusion: Restraints on Innovation and Economies of Scale', in Hawk (ed), *International Antitrust Law & Policy 2006* (Juris Publ., Fordham Competition Law Institute, 2007), 413 et seq.

2790 See Drexel, Hilty, Desautettes, Greiner, Kim, Richter, Surblyté and Wiedemann, "Data ownership and Access to data, Position Statement of the Max Planck Institute for Innovation and Competition", Max Planck Institute for Innovation and Competition Research Paper, No. 16-10, (2016).

use of economic power, be able to collect, store and re-use data without being required to honour or use intellectual property rights. They control the technical flow of data, which gives them the power to enter markets or industries through the use of contracts that diminish the threat of infringements of intellectual property rights through non-assertion clauses.

In several aspects, the new copyright regulation in the EU is a reaction to the above. Article 13 indirectly stipulates that platforms cannot escape paying copyright fees when using copyright protected material (data), when they provide their services.²⁷⁹¹

Generally, the e-ecosystem agreements seem to include restrictions for the users of platforms or clouds, such as exclusivity, non-tampering, and a ban on reverse engineering. Some platform and cloud service providers included broad non-assert provisions that prevent customers from asserting their intellectual property rights against the system leader, or any other cloud service customer or partner.²⁷⁹²

We may presume that producers of, e.g., cars and refrigerators, have their own patent landscapes that the system leaders could simply eliminate. Years or decades of investment in R&D could be lost because the device producers in future need to provide interoperability to their customers, and hence need to connect to the e-ecosystems and thus possibly surrender their property rights to the gatekeepers. Indeed, non-assertion clauses can if they are wide eliminate the incentive to conduct R&D, if the firm knows that it can still not prevent a firm to enter the market. Cloud providers may with the use of these clauses and the data advantage become very potent competitors to any Cloud user.

In the flow of data, the device producers and/or the system leaders will hold some intellectual property rights, such as *sui generis* database protection. They can perhaps claim that the datasets they collect are trade secrets.²⁷⁹³ However, the system leaders' businesses do not seem to revolve around the need for or use of property. On the contrary, the data collection agreements, that the system leaders provide to the business users control the whole relationship or ecosystem, to the benefit of the system leaders. They control the data flows.

In this light, it seems that some rights to the benefit of brick-and-mortar firms may create competition. Property, or some aspects included in the bundle of rights that we call property, may empower the device producers vis-à-vis the platform and cloud service providers, and, thus, enhance competition by lessening the network effects and increasing the commercialisation of data sales. However, not a full property right, the right that creates competition is instead the right to transfer 'their' generated data from a platform to another. It may well be that a porting right in datasets is the solution. Porting may create competition between the e-ecosystems, as it enables users, brick-and-mor-

2791 <https://ec.europa.eu/digital-single-market/en/modernisation-eu-copyright-rules>

2792 See discussion above. What is problematic with these agreements, from a competition law perspective, is that they are vertical and that they are a no-go for many competition authorities and economists. Indeed, in accordance with vertical or licensing guidelines, it would be difficult not to have such covenants accepted under competition law.

2793 See for example the new Directive 2016/943/EU of 8 June 2016 on the protection of trade secrets.

tar firms, to choose between platforms, cloud service providers, enhancing competition and lessening network effects, while it may cause new e-ecosystems to develop.

Moreover, if a porting right covers the datasets, access is more likely to be granted within a contract (e.g., a license agreement). In the realms of open data, under the PSI directive, re-users extract and purchase data under database license agreements, from the public sector bodies that collected the data.²⁷⁹⁴ The re-users, often data brokers, prefer that set-up, compared with being granted access to data available on a website, without an agreement. Indeed, they want the public sector bodies to have some rights to base the transaction on, even though this means that they have to pay a license fee. They would thus rather enter contracts in reference to datasets. Otherwise, they run the risk that the data collected will be put on a website for anyone to download, and will not have the possibility to enter into special agreements with clauses (e.g., warranties) regarding quality or just-in-time delivery of real-time data, etc. Commercial transactions can thus also increase the value for those buying services.

In this way, if device producers are given a porting right to datasets, this spurs commercialisation, quality in data and the incentive to contractually agree on the means of distribution. This may potentially benefit re-users vis-à-vis the cloud providers and system leaders.²⁷⁹⁵ If a platform or cloud provider would purchase access to the data provided by a brick-and-mortar firm, that would empower the device producers.

Notwithstanding the above, an exclusive property system also implies that the inventor may refuse access to the property. Thus, it can make knowledge scarce and therefore more costly. In comparison, the ability to price and decide what to do with property is circumscribed in a liability system where the property holder may not refuse access.²⁷⁹⁶ In reference to data, especially when dealing with specific generic data points, an exclusive right to refuse access may cause large problems. Several firms collecting data will, in the IoT, hold the same data due to 'multi-homing'. Multi-homing is the practise of obtaining, or having the possibility to obtain, the same data from several sources. Indeed, it would not be possible to have exclusive rights to individual data points. However, a right to transfer or port data is, in a sense, a limited property right when the holder has a right to transfer the dataset, but no right to the individual data stored in the database. Indeed, it is rather an limited right to a dataset, under certain circumstances.

Such a right could thus include a mandatory rule enabling porting of the database or dataset, when it is in a cloud provided by a cloud service provider, this combination could be key to commercialisation and interoperability in data and datasets, and could lessen

2794 Lundqvist, 'Turning Government Data into Gold': The Interface Between EU Competition Law and the Public Sector Information Directive – With Some Comments on the Compass Case', (2013) 44(1) I I C – International Review of Intellectual Property and Competition Law, 79-95.

2795 Joseph Drexler, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access' (October 31, 2016). Max Planck Institute for Innovation & Competition Research Paper, No. 16-13, 33. Available at SSRN: <https://ssrn.com/abstract=2862975> See also for prospect theory: Kitch, "The Nature and the Function of the Patent System" (1977), 20 J L & Econ, 265.

2796 Cf. Ullrich, 'Legal Protection of Innovative Technologies: Property or Policy?', in Granstrand (ed), Economics, Law and Intellectual Property (Springer Science+Business Media Dordrecht, 2003), 464.

network effects. Ownership of individual data points should be avoided.²⁷⁹⁷ Otherwise, significant hold-up problems may appear. Furthermore, the cloud service provider should not have any right to the database under the database protection envisioned here, as only firms storing dataset with third parties – at arm's length – would retain the right to transfer datasets. Such porting rights being mandatory in the sense it cannot be contractually eroded or derogated from.

A porting right could allow customers to change cloud providers and to promote interoperability on the internet. It will force the e-platforms and system leaders to adopt technical standards so as to enable interoperability, and thereby enhance competition between e-ecosystems.

So, in reference to datasets comprising data, can a porting right be imagined? In the run-up to the recently published draft regulation for the free flow of data, the EU Commission did imagine a porting right for undertakings, regarding non-personal data.²⁷⁹⁸ The Commission impact assessment addressed the issues that providers of cloud services or other digital services distort competition and prevent free movement of data by preventing or obstructing companies from switching providers. It was therefore rather surprising that the proposal contained only a call for self-regulation regarding the right to port data (Article 6).²⁷⁹⁹ Indeed, when the proposal was published, the Commission left it to the industry to self-regulate the issue of porting rights. The industry should agree on contractual stipulations in reference to this issue and, moreover, create technology interoperability in reference to porting data, i.e., technical standards to enable porting. The question is whether that is a workable solution. Indeed, the parties of this industry might be too divided and there are few workable standard-setting organisations that include the whole industry. It doubtful that the proposed call for self-regulation will be adhered to.

By not proposing a right to port data, the Commission also opens for Member States to introduce some kind of right to non-personal data. The Commission states that there is support in France and Estonia for introducing a right to port data. The Commission does not disclose the discussion in Germany about creating an intellectual property right for device producers in regard to non-personal data. The German discussion also includes

2797 Joseph Drexler, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access'(October 31, 2016). Max Planck Institute for Innovation & Competition Research Paper, No. 16-13, 17 et seq. Available at SSRN: <https://ssrn.com/abstract=2862975>

2798 European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions SWD (2017) 2 Final, COM(2017) 9 Final, 13; European Commission, Commission Staff Working Document on the free flow of data and emerging issues of the European data economy, COM(2017) 9 Final, 10.1.2017, 33, making reference to the works of Herbert Zech who claimed that the right way forward is the creation of a property right to non-personal goods. Cf. Zech, 'Information as a tradable commodity', in De Franceschi (ed), *European Contract Law and the Digital Single Market*, 2016, 51-79.

2799 Moreover, in a regulation which otherwise stipulates hard rules and prohibitions for Member States to create or maintain barriers to the free movement of data, it is asymmetric to include only a plea to the private actors to self-regulate in order not to minimize or prevent competition and free movement of data. This prevents coherence between the requirements of free movement and the requirements under competition law. Ibid.

negative rights and a right to port data.²⁸⁰⁰ Would Article 6 in the proposed Data Free Flow Regulation pre-empt Member States enacting porting rights for data under EU Law? There is room to argue that the EU has not with a call for self-regulation exercised its competence, which would give room for Member States to act.

According to the Commission, one of the main reasons for not creating a right to port data was that the interface between such a right and *sui generis* database protection, trade secret protection and other intellectual property rights covering data was not fully investigated.

10.9.3. Technological solutions: blockchain based IoT and Industry 4.0.

One of the main problems of the current organisation of the digital economy is the central role of digital intermediaries – digital platforms which harvest and possess different sorts of data to which they may decide, or not, to provide access. Hence, for any transaction between A and B, the data concerning this transaction is collected by a digital intermediary, which facilitates through its technology and platform the exchange. However, it may be possible to imagine that this ‘third-party’ is not a platform but constitutes a decentralised option.

Blockchain or Distributed Ledger Technology (DLT) is set to become the ‘Internet of value’²⁸⁰¹ that will complement the current Internet architecture, albeit on very different principles. Blockchain constitutes a technology facilitating the exchange of value in a secure and decentralized manner, without the need for an intermediary. Its main components are a distributed ledger recording all transactions or assets that are part of its domain, encryption protecting this ledger from tampering, and distributed storage of all data through the sharing of excess drive and network capacity on PCs and in data centers. By promoting decentralisation and disintermediation Blockchain enables will challenge the current centralised architecture of the Internet. DLT relies on protocols and services that have the capacity to implement their own systems of rules on the basis of ‘smart contracts’. These ‘self-contained systems’ operate autonomously, governed by *lex cryptographia*²⁸⁰², and are designed in such a way that they cannot be altered by any single party, and thus are not in principle, subject to interaction power. These systems enable new forms of social interactions and commercial activity, with less of a need for centralized coordination.

2800 Zech, ‘Information as a tradable commodity’, in De Franceschi (ed), *European Contract Law and the Digital Single Market*, 2016, 51-79; Kerber, ‘A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis’, *GRUR Int* 2016, p. 989; and Drexler, Hilte, Desautettes, Greiner, Kim, Richter, Surblyté, and Wiedemann, ‘Data Ownership and Access to Data – Position Statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate’ (August 16, 2016), Max Planck Institute for Innovation & Competition Research Paper, No. 16-10. Available at SSRN: <https://ssrn.com/abstract=2833165>.

2801 See, <https://www.mckinsey.com/industries/high-tech/our-insights/getting-serious-about-blockchain>.

2802 A. Wright, P. De Filippi, ‘Decentralized Blockchain Technology and the Rise of Lex Cryptographia’ (2015) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664 ; A. Wright, P. De Filippi, ‘Decentralized Blockchain Technology and the Rise of Lex Cryptographia’ (2015) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664.

Hence, while in the digital platform model only the centralised online platform collects information about past transactions, blockchain offers a distributed decentralised ledger, which keeps a complete record of all past transactions on the network. This enables all participants to have access to information about past transactions and, thus, ensures that no participant to the network enjoys a position of superior bargaining power due to informational asymmetries. This equality is furthered by the transparency of the process: each new transaction is broadcast to the entire network and each participant has the power to determine its authenticity. This breaks with the centralised data silos model of the platform economy, where only some actors have access to this information, as all interactions between the network participants happen through them, thus, enabling them to accumulate data, which, in turn, can help them to increase their bargaining power and to erect barriers to entry.

Blockchain technology facilitates the organisation of micro-transactions. There is no need for a centralised network intermediating all transactions nor for administration costs to be incurred for each additional transaction. Blockchain may enable direct transactions to take place between the various nodes of a network, without being necessary for these to be administered from the centre of the network. This greatly reduces transaction costs. Consequently, micro-transactions that were too expensive to organise in the context of a centralised network because their value was lower than the administration costs are now, due to the much lower administrative costs of DLT, economically rational. Blockchain can thus charge lower fees than that which platforms usually charge.

All transactions that run through blockchain benefit from in-built network neutrality, to the extent that the only criterion for processing a transaction is whether the appropriate fee has been paid. Contrary to platforms, it is not technically possible for an entity to either control the traffic in the blockchain network and/or differentiate the way in which various transactions will be executed in terms of speed, quality etc. In comparison to neutrality arising from the structure of a blockchain network, for digital platforms neutrality obligations are usually mandated by law²⁸⁰³.

Once a transaction is 'mined' into a block, after a certain period of time it is nearly impossible to reverse it because it would mean that you would have to re-mine the block and all the other blocks added on top of that; this computationally intensive operation would incur high costs that would likely be disproportionate to the value of reversing the original transaction. Transactions in blockchain thus become irreversible, and this reduces the risk of manipulation of the data by an operator, a risk that is very much present with regard to digital platforms.

Everybody can check the public ledger and verify whether the transaction took place or not, the identity of the sender and the locations between which the value was transferred. The transparency of the blockchain offers significant advantages to platforms

2803 See, for instance, the 2017, Google Search (Shopping) competition law Case AT.39740 in the EU, regarding search neutrality, or the Proposal for a Regulation of the European Parliament and of the Council on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, 2018/0112 (COD), imposing neutrality requirements in the way digital platforms treat other websites and other businesses with regard to ranking etc.

when organizing a network of transactions, as transparency generates institutions-based trust, without that being based on the power of control exercised by an intermediary, as it is the case in platform-based networks. This has also profound implications as to the ability of each participant to this network to feel as though they are in control. One of the main features of blockchain-based applications is that users have absolute ownership of their assets (e.g. money, data etc.) without the need for any kind of custodian (e.g. banks, online intermediaries etc.). Thus, once someone generates a private key, no other person can claim the assets, confiscate them or deny access to them.

An important feature of blockchain is that information is distributed in a decentralised ledger and it is possible for anyone (in the case of public blockchain), or for a number of participants (in the case of a permissioned blockchain) to have access to it, particularly if they decide to switch to a different platform or blockchain ‘fork’. Contrary to centralised platforms, where users are averse to switching, the replicability of data makes it easier for blockchain to switch to competing forks and abandon the older version of the blockchain²⁸⁰⁴. This has also important implications for indirect network effects, as blockchain developers (writing apps) and blockchain operators (e.g. miners) also have less reasons to be anchored to a specific platform. It is in their interest to be among the first to contribute to a fork because if such were to attract a considerable number of existing users, in particular at the initial stages of its development, rewards (for mining) may be very high. Hence, the expansion of the use of blockchain may challenge the dominance of digital platforms by denying them the possibility to hold huge amounts of data that constitute a barrier to entry and also reinforce their central position in the ecosystem. In contrast in a blockchain data is held by those contributing it. These may transact directly with each other through the decentralized ledger.

Blockchain will have of course implications on the IoT. The transition from smartphones to the IoT where millions of devices will get direct Internet connectivity including thermostats, refrigerators, cars etc. will increase the means through which companies may get access to valuable consumer data. One of the possible uses of blockchain technology and associated cryptocurrencies is that it could be to become the backbone of the machine-payable web, i.e. machines communicating, sharing processing power and exchanging value with each other, and the base layer connecting the different industries. IOTA²⁸⁰⁵ is the first cryptocurrency designed to power the IoT revolution. It enables the secure sharing of resources between smart devices with zero transaction fees. IOTA has also been used as the underlying ledger for transferring information during the production process in Industry 4.0 projects, while also leading to a tamper-proof audit trail.

2804 Joseph Abadi and Markus Brunnermeier, “Blockchain Economics”, (2018) <https://scholar.princeton.edu/sites/default/files/markus/files/blockchain_paper_v2c.pdf>.

2805 See Serguei Popov, “The Tangle” (2018) Report <https://iotatoken.com/IOTA_Whitepaper.pdf>.

10.10. Conclusions

This chapter looked at the development of IoT environment and challenges it will bring. As BRICS countries are increasingly adopting IoT solutions, two particular obstacles will need to be overcome. One relates to licensing SEPs that are necessary for the use of infrastructure standards, and the other relates to access to data necessary for the seamless functioning of IoT devices.

Disputes concerning the licensing of SEPs are no longer only US or EU phenomenon, large high technology companies are increasingly using BRICS countries as a venue for litigation. Issues that will need to be clarified include the availability of injunctions for the infringement of SEPs, methodologies for calculating FRAND royalties and potential anti-competitive practices by SEP holders. Practices in the EU or US may serve as an inspiration, but BRICS countries may also consider adopting guidelines for a workable SEP licensing framework, which should take into account and protect the legitimate interests of both SEP owners and standard implementers.

Regarding access to data, BRICS countries are yet to introduce appropriate measures in this area. In the absence of specific legislation, we have seen that competition law may potentially apply to force dominant companies to share data, but competition law is inadequate as a general framework for regulating access to data. We have also seen that introduction of data producer's rights may also not be a feasible alternative, due to complexities in its implementation and the general need to secure more access, not more exclusivity. Instead, a way forward may be in providing sector-specific data access regimes and encouragement of the formation of data pools where companies would voluntarily exchange data. However, care must be taken to also ensure privacy of individuals and compliance with data protection rules

Looking ahead, new technologies would require new creative solutions. We might consider promoting the applicability of blockchain technology as a means to foster data sharing as well as the creation of more open interoperability standards. It remains to be seen whether companies and governments are ready for adopting more creative approaches.

Chapter 11: Privacy Restrictions as Restrictions of Competition

Nicholas Economides & Ioannis Lianos

11.1. Introduction

The recent controversy on the intersection of competition law with the protection of privacy, following the emergence of big data and social media is a major challenge for competition authorities worldwide. The concept of ‘big data’ is usually employed to refer to gigantic digital datasets, which are often held by corporations, governments and other large organisations, and which are extensively analysed using computer algorithms.²⁸⁰⁶ Breaches of privacy or data protection may affect millions of people and, depending on the purpose, even compromise the democratic process.²⁸⁰⁷

Although the tracking of webpages visitors exist since the early days of the Internet, with the rise of social media and Web 2.0, it is technologically possible for third-party websites to be embedded into the visited website through references to external resources to the website, such as a JavaScript code, which the user’s browser will automatically load from the third-party server, and execute²⁸⁰⁸ Data can be harvested by digital platforms across different devices such as smartphones, tablets and laptops/computers, for instance with regard to websites the user has interacted with (first data aggregator), or from other entities, through third party tracking, the tracker harvesting data not directly from the user, but indirectly through access to the data aggregated by the first data aggregator. According to a study published by Ghostery in 2017, more than 77% of all page loads contain at least one tracker, for statistical or advertising purposes, Google being found on more than 60% of all page loads, and Facebook on more than

2806 ‘Aspects of ‘big data’ that are often mentioned are large amounts of different types of data, produced at high speed from multiple sources, whose handling and analysis require new and more powerful processors and algorithms’: Autorité de la Concurrence & Bundeskartellamt, Competition Law and Data (May 16, 2016), 4. ‘Big data’ is often characterized <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election> by the various ‘V’s’, which go from four, according to certain descriptions, Velocity, Variety and Volume, Value (to be extracted) to six, according to others adding Veracity and Validation.

2807 See, the recent controversy concerning the use of Facebook generated data from Cambridge Analytica, a political strategy firm, for uses for which Facebook’s clients had not provided their consent, in particular in order to design algorithms that enabled Cambridge Analytica to build a system that could profile individual voters in the 2016 Brexit referendum, as well as the 2016 US Presidential election, in order to target them with personalised political advertisements and influence their votes. See, <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election> ; <https://www.politico.eu/article/cambridge-analytica-chris-wylie-brexit-trump-britain-data-protection-privacy-facebook/>.

2808 S. Schelter & J. Kunegis, Tracking the Trackers: A Large-Scale Analysis of Embedded Web Trackers, Proceedings of the Tenth International AAAI Conference on Web and Social Media (ICWSM 2016), available at <file://ad.ucl.ac.uk/homea/uctlio/ Documents/EPANT/13024-57897-1-PB.pdf>.

27%, followed by Comscore, Twitter and Yandex.²⁸⁰⁹ However, it has also been reported that the implementation of stricter data protection regulation, such as the GDPR, has led to a decrease of the usage of third-party cookies and third-party domains.²⁸¹⁰ Tracking capabilities are also concentrated in a few number of companies, with Google holding most power, in terms of reach of a tracker on popular websites and apps, in both websites and apps, followed by Twitter, Facebook and Microsoft for websites trackers, and Amazon, Facebook and Comscore for mobiles trackers.²⁸¹¹ The recent consolidation of the tracking analytics industry with the mergers of Microsoft/LinkedIn (2016), Adobe/Lyvefire (2016), Facebook/Liverail (2014), Alibaba/Umeng (2013), Google/DoubleClick (2007), has also contributed to the emergence of a market structure dominated by a small number of firms, and a long tail of less significant trackers.²⁸¹²

Furthermore, data (or information) intermediaries (brokers), such as Axciom and Equifax, package information from various sources to profile customer groups. This profiling has historically aided targeted advertising. Advertisers are building campaigns based on geographies, socioeconomic factors, age, government data, same-store sales, etc. The internet spawned new variants of data brokers. Traditional intermediaries collect outcomes data on several dimensions, such as same store sales and credit history. Marrying raw purchasing history (harvested by traditional intermediaries) with ideation (with prediction platforms such as Facebook/Google) may easily build a digital customer journey. Basic statistical models would be able to determine *when* to advertise to individuals to maximize conversions. In this way, payments become far more important for future advertising revenue. Statistical models could separate window shoppers and day dreamers from serious shoppers. While this discourse focuses largely on payments, it extends to other decisions made by consumers.

Recent technological progress in data analytics may also greatly facilitate the prediction of personality traits and attributes from even a few digital records of human behaviour, such as 'likes' or facial images on Facebook,²⁸¹³ while inferring identities, such as social security numbers, from anonymised data has been possible for some time.²⁸¹⁴ The development of smart cities (with extensive networks of sensors) and technologies such as artificial neural networks enable better predictions of both actions as well as behaviours of smart cities' users, or even the formation of new social ties, through better modelling

2809 See, <https://www.ghostery.com/study/>.

2810 P. Wagner, News Pages Are Abandoning Third-Party Ad Trackers, available at <https://www.statista.com/chart/15578/change-of-ad-tracking-techniques-since-gdpr/> (September 25th, 2018) (noting that in Europe third party cookies decreased by 22 percent per page while third-party domains decreased by 4 percent since the GDPR became enforceable).

2811 See, R. Binns, J. Zhao, M. Van Kleek, N. Shadbolt, Measuring third party tracker power across web and mobile, (March 2010) ACM Comput. Entertain. 9, 4, Article 39, <https://doi.org/00000001.00000001>, available at <https://arxiv.org/pdf/1802.02507.pdf> (proposing a new metric for power to measure the effect of the consolidation among tracker companies).

2812 Ibid.; M. Falahrastegar, H. Haddadi, S. Uhlig & R. Mortier, Anatomy of the Third-Party Web Tracking Ecosystem (2014) arXiv:1409.1066, available at <https://arxiv.org/abs/1409.1066>.

2813 M. Kosinski, D. Stillwell, T. Graepel, Private traits and attributes are predictable from digital records of human behaviour, (2013) 110 (15) Proc. Natl. Acad. Sci. U.S.A. 5802–5805.

2814 A. Acquisti, & R. Gross, Predicting social security numbers from public data, (2009) 106 (27) Proc. Natl. Acad. Sci. U.S.A. 10975.

and simulation.²⁸¹⁵ Digital technology facilitates the elaboration of advanced (even real-time) sociometrics and new applications, such as social credit experiments.

There are different perspectives globally as to the level of personal data protection and the role competition law may play in this context.

The EU, as well as its Member States, are one of the most active jurisdictions in this context, to the extent that there is a fundamental right to privacy²⁸¹⁶ and the establishment of an elaborate system of data protection, most recently with the implementation of the General Data Protection Regulation (GDPR) and related legislation.²⁸¹⁷ The fundamental principle of the GDPR is the requirement to have a 'legal basis' for all processing of personal data (although this does not cover 'anonymous' data)²⁸¹⁸, six legitimate grounds being mentioned, including the requirement of explicit consent by the data subject. The GDPR obligations apply to 'controllers' which can be natural or legal persons, irrespective of whether their activity is for profit or not, irrespective of their size and whether they are private law or public law entities. Among the rights conferred to data subjects is the right to data portability, individuals having the right to receive free of charge their personal data which they provided themselves on the basis of contract or consent in a 'structured, commonly used, and machine-readable format' and to transmit the data to another controller.

In the US, the California Consumer Privacy Act (CCPA) 2018²⁸¹⁹, and a number of sector specific data and privacy protection regimes, have been enacted at both federal and state levels. The CCPA has similarities with the GDPR, but a more limited scope. It applies only to for profit organizations (businesses) having an annual gross revenue in excess of \$25 million and doing business in California (although a business established outside of California may also fall within the personal scope of application if it collects or sells

2815 See, M. Batty, K.W. Axhausen, F. Giannotti, A. Pozdnoukhov, A. Bazzani, Smart cities of the future, (2012) 214 The European Physical Journal 481; A. Almeida & G. Azkune, Predicting Human Behaviour with Recurrent Neural Networks, (2018) 8(2) *Applies Sciences* 305.

2816 Article 7 of the Charter of Fundamental Rights lays down the right to respect for private and family life, home and communications, protecting the individual primarily against interference by the state.

2817 Article 8 of the Charter of Fundamental Rights recognises the protection of personal data as a separate right, which goes beyond simply protecting against interference by the state, but entitles the individual to expect that his or her information will only to be processed, by anyone, if however this processing is fair and lawful and for specified purposes, that it is transparent to the individual who is entitled to access and rectification of his/her information. The rights must also be subject to control by an independent authority. Article 16 TFEU requires rules to be laid down relating to data protection and to the free movement of such data in the internal market. The EU has adopted General Data Protection Regulation (EU) 2016/679 the protection of natural persons with regard to the processing of personal data and on the free movement of such data [2016] OJ L 119/1, which applies from 25 May 2018. Its scope is significant and wide-ranging. For a commentary, see O. Lysnkey, The 'Europeanisation' of Data Protection Law, (2017) 17 *Cambridge Yearbook of European Legal Studies* 252. See also, Directive 2009/136/EC of 25 November 2009 (Cookie Directive) [2009] OJ L337/11; Directive 2002/58/EC of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (ePrivacy Directive) [2002] OJ L201/37.

2818 Recital 26 of the GDPR defines anonymous information, as '...information which does not relate to an identified or identifiable natural person or to personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable'.

2819 See <https://www.ccaprivacy.org/>.

California consumers personal information while conducting business in California). It also excludes from its scope the processing of some categories of personal information (e.g. medical information and protected health information). 'Aggregate consumer information' also does not benefit from protection. In contrast to the GDPR, the CCPA does not require a 'legal basis' for all processing of personal data, nor the establishment of accountability requirements, such as the appointment of Data Protection Officers, as required by the GDPR. The right to opt-out is only available in the case of selling or sharing personal information, and does not apply to the harvesting of personal information, as it is the case in the EU, which covers all 'processing' of information. The CCPA does not include a list of grounds that businesses must adhere to a priori but relies on a *posteriori* mechanism, allowing consumers to opt-out to the sale and disclosure of their personal information or to request the erasure of the information. If the consumer opts out, then an explicit permission is required for the sale and disclosure of this personal information. The right to data portability is also recognized as forming part of the right to access of the consumer to her data free of charge but only applies to data collected in the previous 12 months.

Similarly, privacy and data protection provisions exist in several BRICS jurisdictions.²⁸²⁰ In Brazil, the recently enacted in August 2018 General Data Protection Law (Law n. 13.709/2018) is inspired by the European regulatory framework, may be applied extra-territorially, and relies on consent of the individual.²⁸²¹ In Russia, the Law On Personal Data provides the normative basis for the process of personal data collecting, storing and processing, again on the basis of the principle of consent by the data subject.²⁸²² In contrast to the GDPR and the CCPA, it does not include however the right to data portability. In India, the Supreme Court declared in *Justice KS Puttaswamy And Another Vs. Union of India and Ors*, the 'right to privacy' to be part of the fundamental 'right to life' under Article 21 of the Constitution of India²⁸²³ and a draft Personal Data Protection Bill (PDPB) was suggested by the government in July 2018, and is still in consideration. It relies on the concept of explicit consent of the data subject and aims to protect the autonomy of individuals in relation with their personal data. The Bill includes a right to data portability.

The situation is different in China where, in the absence of a regime of data protection and a right to privacy, legal practice tends to apply *The Law against Unfair Competition* to provide ultimate protection when no protection can be sought elsewhere. In China, data protection mostly refers to data security and does not encompass privacy concerns. One may nevertheless observe the gradual emergence of other paths for the protection, in particular a property rights protection for data. Digital property rights holders may protect their property rights and interests in accordance with the provisions of the *Property Law*, the *Intellectual Property Law*, the *Law against Unfair Competition*, the *Tort*

2820 For a more detailed discussion, see the relevant country reports.

2821 Law n. 13.709/2018, known in Portuguese as Lei Geral de Proteção de Dados – "LGPD."

2822 TheFederalLaw'OnPersonalData'dated7July2006No.152-FZ<<http://pravo.gov.ru/proxy/ips/?docbody=&nd=102108261>> accessed 28 February 2019.

2823 https://www.sci.gov.in/supremecourt/2012/35071/35071_2012_Judgement_24-Aug-2017.pdf

Liability Law, etc. depending on the nature of their different properties. However, no consensus has been reached yet on the legal nature of digital assets in China, such as industrial data and personal information.²⁸²⁴ In South Africa, the right to privacy is protected by the common law and section 14 of the Constitution. Personal data protection is further provided by the Protection of Personal Information Act, No 4 of 2013 (POPIA), although it is not yet in effect. As the GDPR it applies to the processing of personal data and prescribes eight specific principles for the lawful processing and use of personal information. In particular, any transferring of personal information across borders without any legal basis, including the prior consent of the party whose personal information was processed.

In addition to this emerging field of data protection, in recent years, the digital sector has attracted the attention of some competition authorities and regulators involved in data protection, which advanced the need for a more connected approach between these two areas of law, aiming to avoid the exploitation of the personal data of consumers and restrictions to their privacy,²⁸²⁵ although the theoretical underpinnings may be different. Indeed, data protection and privacy regulations often take a fundamental rights perspective, seeing privacy as an issue of rights. Both the GDPR and its predecessor were inspired by a fundamental rights based approach as data protection and the right to privacy are protected by the Charter of Fundamental Rights of the EU – Articles 7 and 8. A distinction is also made between privacy, which is formally protected and cannot be traded, and data which can be traded following consent by the data subject. However, no existing data protection regulation establishes a property right on personal data, and confers that to the data subjects. Although the GDPR seems to be inspired by some property-like rights logic when it introduces the principles of data portability and the right to be forgotten, it stops short from recognizing property rights on data.²⁸²⁶ The rule is that data can be possessed by the entity collecting it without any property right being affected. As a result, platforms have been able to harvest data and therefore possess data, without the users detaining any property right on their data. A property right would involve the use as well as the possibility to sell data and license it to someone for profit, or use the data as security/collateral for raising capital, as it is the case with intellectual property rights. Although data could be considered as an intangible asset which may be protected by property rights, this is not presently possible with personal data.²⁸²⁷ The exploitation of personal data certainly creates value, however this is entirely,

2824 For more detailed analysis, see the description in the country report on China in Part 4.

2825 See, European Data Protection Supervisor, *Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy* (March 2014); *Autorité de la Concurrence & Bundeskartellamt, Competition Law and Data* (May 16, 2016); US FTC, *Big Data – a Tool for Inclusion or Exclusion?* (January 2016) and the references included.

2826 J. M. Victor, *The EU General Data Protection Regulation: Toward a Property Regime for Protecting Data Privacy*, (2013) 123(2) *Yale Law Journal* 266

2827 See, for instance, the discussion in P. Samuelson, *Privacy as Intellectual Property*, (2000) 52(5) *Stanford Law Review* 1125; L. Lessig, *Privacy as Property*, (2002) 69 *Social Research* 1; P. M. Schwartz, *Property, Privacy, and Personal Data*, (2004) 117 *Harv. L. Rev.* 2055; J. N. Purtova, *Do property rights in personal data make sense after the Big Data turn? Individual control and transparency*, (2017) 10(2) *Journal of Law and Economic Regulation* 64.

or overwhelmingly, captured by the entities (e.g. digital platforms) harvesting this data. In contrast, competition law usually takes a market failure approach, and is concerned by the fact that consumer or total welfare, or well-being, may suffer from reduced data protection in a malfunctioning market for personal data acquisition, to a similar extent that it could suffer from higher prices or lower quality. In addition,, to fit better with the welfarist foundations of the economic approach in competition law, although one may also envisage the possibility of a rights-based framework,²⁸²⁸ a market failure approach may provide common intellectual foundations for the assessment of harms associated to the exploitation of personal data, even when the specific legal system does not formally recognize a fundamental right to privacy. It may also provide the possibility of a more unified approach on theories of harm for both competition law and data/privacy protection. For this reason, we argue for a market failure approach, although we also recognize that there is value in protecting personal data and privacy from a fundamental rights' perspective and in any case that the two approaches are not mutually exclusive but may, and have already been, combined in order to provide the highest levels of protection.

We present a model of market failure based on a requirement provision in the acquisition of personal information from users of other products/services of Google and Facebook. We establish the economic harm from the market failure and the requirement using the traditional competition law toolbox. Eliminating the requirement and the market failure by creating a functioning market for the sale of personal information is imperative.

Besides the traditional analysis of the requirement and market failure, we note that there are typically informational asymmetries between the data controller and the data subject. The latter may not be aware that his data was harvested, in the first place, or that the data will be processed by the data controller for a different purpose, or shared and sold to third parties. Maybe there was no consent for such use, or, if there was consent, it may not have extended to third parties' use. The exploitation of personal data may also result from economic coercion, on the basis of resource-dependence or lock-in of the user, the latter having no other choice, in order to enjoy the consumption of a specific service provided by the data controller or its ecosystem, than to consent to the harvesting and use of his data. A behavioural approach would also emphasise the possible externalities (demand-side market failures) coming out of the bounded rationality, or the fact that people do not internalise all consequences of their actions and face limits in their cognitive capacities. Hence, a user may consent on the harvesting and use of his data, without necessarily realising the full consequences and costs of his choice. This may occur in the context of an exchange in which the user is offered a free product in exchange of his data.

2828 For a discussion, see, with regard to the right to food, I. Lianos & A. Darr, *Hunger Games: Connecting the Right to Food and Competition Law* (June 1, 2019). Available at SSRN: <https://ssrn.com/abstract=3414032> or <http://dx.doi.org/10.2139/ssrn.3414032>.

Dan Ariely advances the concept of ‘zero-price effect’, suggesting that people associate free products with pleasure, when making decisions under System 1 (intuitive decisions).²⁸²⁹ Some recent neuro-economics research also links payment for a product with pain, arguing for instance that consumers may react differently to the ‘pain of paying’ and that credit cards ‘anesthetize’ the pain of paying.²⁸³⁰ This research illustrates how decisions over providing access to personal information may be welfare or well-being reducing for individuals and that the requirement of consent, as it is set in data protection law, may not necessarily fully preserve their interests.

By recognizing that there is a market failure in the acquisition and exploitation of user information, we identify a wider problem that the issue of unauthorized harvesting and use of personal data. This may result even from conduct that, at first sight, could appear as increasing consumer surplus. For instance, advertised-based platforms, such as Google and Facebook provide free search in exchange for acquisition of private user information. Not only these companies benefit from market power, to the extent that they control the most popular search engine and social media platforms, but also their users are locked-in since they face costs of switching to rival products. Furthermore, there are considerable information asymmetries resulting out of the opaque and constantly changing data and privacy policies, as well as the fact that users are not aware of the extent of companies’ surveillance. In addition, these companies exploit consumers by offering a ‘zero price’ in terms of monetary transaction for their product, although this ‘zero price’ may be arbitrary and may underline the market failure in the acquisition of private user information. Present privacy regulations ignore this market failure as they are based on the ‘rights’ of users but ignore that there is something fundamentally wrong with this ‘market.’ The Chapter first engages with the different types of market failure, before addressing the way competition law has dealt and could engage with exploitative and exclusionary conduct leading to privacy harm. The final part provides some thoughts on possible remedial action, also beyond the strict confines of competition law. The Chapter does not engage with other forms of user harm that may result from anticompetitive conduct by platforms, such as deterioration of the quality of search query results,²⁸³¹ or excessive prices extracted from advertisers.

11.2. Privacy and Market Failures

Digital markets are affected by different types of market failure that may impact on their optimal performance with regard to delivering privacy for their users. These market failures may result from the strategies employed by large digital platforms. We present

2829 K. Shampanier, N. Mazar, & D. Ariely, Zero as a special price: The true value of free products, (2007) 26 Marketing Science, 742; D. Ariely, Predictably Irrational: The hidden forces that shape our decision (HarperCollins, 2008), Chapter 3.

2830 See, S. Rick, C.Y. Cryder, G. Loewenstein, Tightwads and Spendthrifts, (2008) 34 Journal of Consumer Research 767 (suggesting a “spendthrift-tightwad” scale, to measure individual differences in the pain of paying); S. Rick, The Pain of Paying and Tightwadism: New Insights and Open Questions, in S.D. Preston, M. L. Kringsbach, and B. Knutson (eds.), The Interdisciplinary Science of Consumption (MIT Press, 2014), 147.

2831 See, I. Lianos & E. Motchenkova, Market Dominance and Search Quality in the Search Engine Market, (2013) 9 Journal of Competition Law and Economics 419.

a model of market failure in the acquisition of personal information from users of other products/services of Google and Facebook arising from the requirement of these platforms that users provide their personal information if they use the company's service. We establish the economic harm from the market failure and the requirement using the traditional competition law toolbox. Eliminating the requirement and the market failure by creating a functioning market for the sale of personal information is imperative. Besides the traditional analysis of market failure, we note that there are typically other types of market failures, such as consumers' lock-in, information asymmetries, missing markets enabling users to learn the value of their data, and behavioural biases. As we have explained in Chapter 4, data protection legislation offers a partial response to this exploitation of the privacy and data of the users, to the extent that it does not take into account, in designing its remedial strategy, all the possible long-term harms to the platforms' users, the power of some digital platforms and the 'special responsibility' that may ensue from such positions of power. Competition law theories of exploitation and exclusion can provide a good complement to data protection law in this context.

11.2.1. Market failures through exclusionary and exploitative requirement contracts bundling digital services with personal data

The antitrust concerns for advertising-based platforms, such Google and Facebook, are similar. Both companies allow free access to their respective service in return for the user granting free access to his/her personal information. This information includes IP address, cookies, location, search history and possibly parsing of emails for Google and user posting and user "likes" history for Facebook. Data collection by the companies occurs with "no questions asked" since the default is to "opt-in" in the collection processes of both companies. The default opt-in and the zero price in data collection constitute a *market failure*. That is, the market between the user and company on acquisition of personal data does not function properly as a market, and everyone participating in Google Internet search or Facebook service is giving their personal data for free. If the default were opt-out rather than opt-in and the market for data acquisition was properly functioning, users would receive various amounts of monetary compensation from the companies depending on each user's features.

Google offers free Internet search and effectively requires data provision by the user at zero price. That is, it offers Internet search *only if* the user provides data. This setup is restrictive to consumers especially those who might be willing to pay for Google service but would prefer not to share their personal information with the companies.

Imposing the requirement of personal data provision to receive Internet search increases Google's market power in the data market. A user who would not have freely given his/her personal data to Google is now doing so because this is a requirement to access Google's Internet search. Thus, this requirement increases Google's market share in the data market. Since such data is used to sell ads, Google's requirement directly increases its market power in the ads market, and stifles competition in this market. This claim

is uncontroversial. As a recent ACCC shows, Google and Facebook possess substantial market power in several markets, including in online search, online advertising and news media referral as ‘gateways’ to online publishing.²⁸³²

To the extent that users receiving free search do not receive in kind the full compensation for the data they provide, they are harmed by the requirement practice. Additionally, there are users who would prefer to pay for search and not to provide their personal data to Google. They are also harmed by being compelled to provide personal data under Google’s requirement.

Similarly, Facebook provides free access to its service and requires data provision at zero price. It offers Facebook service only if the user provides access to personal data. Imposing the requirement of data provision to receive Facebook service increases Facebook’s market power in the data market. A user who would not have freely given his/her personal data to Facebook is now doing so because this is a requirement for access to Facebook service. Thus, the requirement increases the market share of Facebook in the data market. Since the data is used to sell ads, Facebook’s requirement directly increases its market power in the ads market, and stifles competition in this market. To the extent that a user is not compensated adequately for his personal data by the free provision of Facebook service, he is damaged by the requirement practice. Additionally, there are users who are willing to compensate Facebook for its service but would prefer not to provide their personal data to Facebook, who are damaged under Facebook’s requirement.

How would the world be without this requirement? First, the default regime would be “opt-out,” likely imposed by regulation since Google and Facebook do not have incentives to change the present opt-in default regime. In the opt-out regime, the company (Google or Facebook) is unable to legally use or sell the information it collects from a user who has not opted-in. To be able to use or sell information the company collects from a user, the user would need to affirmatively give his/her consent by opting-in. The user may demand compensation or be offered compensation for selling his/her data to the company, and opt-in occurs when a price has been determined and money changes hands.

So, a potentially vibrant market for personal information sold to Facebook or Google has been killed through the requirement practices of Facebook and Google that impose provision of personal data as a requirement for access to Facebook service or Google Internet search service. This is a “market failure” and can be fixed by antitrust and competition authorities in the US, EU and around the world. This goes beyond privacy concerns on the acquisition of personal information that are typically based on “rights” of individuals (for example, see *General Data Protection Regulation*, GDPR of the EU) rather than failure of markets and antitrust violations.

We now briefly describe how the market for sale of personal user data may function once we depart from the arbitrarily-imposed zero price and the present market failure.

2832 For an in depth analysis of this question, see ACCC, Digital Platforms Inquiry (June 2019), available at <https://www.accc.gov.au/system/files/Digital%20platforms%20inquiry%20-%20final%20report.pdf>, 8-10 & 89-99.

We expect that there is plenty of variation both in the company's willingness to pay for users' personal information and in the users' reservation price for the sale of their personal information; of course there is also variation in the willingness to pay for Google (or Facebook) service. In a competitive world, we would expect two different markets. In the case of Google the two markets would be, market one for Internet search, and market two for acquisition of personal information by Google. Similarly, for Facebook, the two separate markets would be, market one for Facebook social network service, and market two for acquisition of personal information by Facebook. When combining the total charges in the two markets, that is, price collected by Google (or Facebook) in market one minus price paid by Google (or Facebook) in market two, we expect that some users would end up paying a positive price for Google (or Facebook) in total, some would be paid by Google (or Facebook) in total, and some would receive break even in total.

Additionally, issues of market operation and allocative efficiency arise because of Google's and Facebook's dominance in their respective markets. Even in a "default opt-out" regime, because of its market dominance, Google (or Facebook) can overcharge users or not pay them the competitive price to provide personal information.

Our exposition uses Google as the dominant firm imposing the requirement, but this narrative can be easily adapted to Facebook. A user *type* may be defined by a triplet of dollar amounts (x, y, z) with variation across users in x , y , and z . We define the amount $\$x$ as how much the user is willing to pay to use Google Internet search. That is, x is the private value/utility for Google search for the particular user and, in general, $x > 0$. We define $\$y$ as how much Google is willing to pay this particular user to induce him/her to voluntarily provide his personal data to Google (in the absence of the requirement). That is, $\$y$ is the value to Google of the personal data that the user provides to the company, and, in general, $y > 0$. We define $\$z$ as the value to the user of giving his/her private information to Google and losing his/her privacy. We will assume that $\$z$ is positive, and we will count $-z$ as a loss for the user if his/her private data is given to the company.

We consider the following three regimes. First, the *current requirement regime*, "opt-in," where the personal information of the user is automatically/readily available for use by the company, and the company requires personal data provision to provide Internet search. Second, the world with *no requirement regime with competition in the personal data market*, where Google has the possibility to perfectly price discriminate to induce the user to sell his/her personal information. In this world, the default is opt-out, which means that the company is not allowed to use any information gathered from the user unless the user affirmatively consents, and there is no requirement to provide personal information to access the search service. In this regime, we assume that Google competes with other firms in search and also faces competition in the personal search market. In the latter, all rivals are very well informed on the features of the user and can practice perfect price discrimination. In the third regime, the default is opt-out and Google is a perfectly price discriminating monopsonist in the acquisition of personal user information. This is a *no requirement regime with a perfectly price discriminating monopsonist*.

We assume that, when a user does not use search and does not provide data, he/she receives a benchmark utility normalized at zero, $U = CS = 0$. Similarly, if there is no provision of personal data by the user, Google's benefit is normalized at $G = 0$. We will measure changes in utility and consumer surplus in the various actions and regime changes from these benchmarks. We assume that Google has zero marginal cost in search.²⁸³³

We first analyse the *current requirement regime*. We have Google as a dominant firm, default "opt-in," and personal data provision is required to receive Internet search. In this regime, when the user accepts the requirement, he/she has utility and consumer surplus

$$U = CS = x - z,$$

since the user receives $\$x$ utility from using Google's search services and incurs a loss of personal privacy worth $\$z$ to him/her. Provided that the value from the use of Google search is higher than the user's cost of loss of privacy, $x > z$, the user accepts the requirement of Internet search to him and personal data provision to Google. Google receives an incremental benefit G equal to $\$y$, the value of the user's data to Google, $G = y$. In summary, in the present requirement regime under default opt-in, when a user accepts the requirement, the benefits to the user and Google are:

$$\text{If } x > z: U = CS = x - z > 0, G = y > 0.$$

If the benefit to the user from search is smaller than the cost of losing privacy, $x < z$, the user does not accept the requirement, does not use Google search, does not provide data to Google, and stays at zero utility. Google receives zero benefit as well.

$$\text{If } x < z: U = CS = 0, G = 0.$$

The current requirement regime results are summarized in Table 1.

Table 11.1: Present Regime: Default opt-in, Google provides search only if it collects personal data

		Benefit to user	Benefit to Google
$x > z$	User accepts the requirement, uses search and provides personal information	$U = CS = x - z > 0$	$G = y > 0$
$x < z$	User rejects the requirement, does not use search and does not provide personal information	$U = CS = 0$	$G = 0$

We now change the default to opt-out and assume that data provision is not required to receive Google Internet search. In this new regime, the user uses Google Internet search, but he does not by default give the right to Google to use his personal data. Therefore, in the *no requirement regime with competition in the personal data market*, provision of personal data is a choice of the user. Google is able to charge a price p_1 for the

²⁸³³ The marginal cost of an additional user for Google and Facebook is very low (almost zero), especially when compared to their fixed costs.

search, and can pay price p_2 to the user for personal data provision.

Rivalry among Internet search companies drives the price in the Internet search market to zero $p_1 = 0$,²⁸³⁴ resulting in

$$U = x, G = 0$$

from the participation in the Internet search market. Since the maximum benefit from personal data to Google is y , Google would be willing to pay up to $p_2 = y$ for personal data acquisition, resulting in benefit

$$G = y - p_2.$$

Once the market for personal information is open from the requirement, other firms will bid up to y to acquire the personal information of a user. Competition among them will result in each of them offering the same price y to the same user, resulting in zero benefit for each of them. Therefore, the user and Google benefits will be

$$U = x - z + p_2 = x - z + y, G = 0.$$

This strategy works as long as $y > z$.

If it happens that $y < z$, the maximum offer a company can make to induce data provision, y , will not be accepted by the user because it would result in lower user utility than when the user did not provide data, $U = x + y - z < x$ since the user had utility $U = x$ when not providing data. Therefore, if $y < z$, the user accepts no offer, resulting in

$$U = x, G = 0.$$

The results of the no requirement regime with competition in the personal data market are summarized in Table 2.

Table 11.2: No requirement regime with competition in the personal data market: default opt-out, personal data provision to Google not required to provide Internet search, competition in the personal data market

		Benefit to user	Benefit to Google
$y > z$	User provides data at price $p_2 = y$	$U = CS = x + y - z > 0$	$G = 0$
$y < z$	When the user values his personal data loss more than Google values the user's data, the user does not sell his/her personal data	$U = CS = x > 0$	$G = 0$

In summary, the number of people who trade under no requirement with competition in the personal data market expands for some types because Google offers them a positive price to induce them to sell data, but there are also types who participate under the requirement but do not participate without it. We explore this next.

²⁸³⁴ If competition is less intense, price will be xk , $0 < k < 1$, with similar results.

Table 11.3 summarizes the differences of the two regimes.

Table 11.3: Comparison of the status quo with no requirement and competition in personal data market

Parameter values	Regime	Benefit to user	Benefit to Google	Participation in personal data market, in regimes 1, 2
$x > z$	Default opt-in, requirement, and user accepts	$U = CS = x - z > 0$	$G = y > 0$	Yes, N/A
$z > x$	Default opt-in, requirement, and user rejects	$U = CS = 0$	$G = 0$	No, N/A
$y > z$	Default opt-out, no requirement, user sells info	$U = CS = x + y - z > x > 0$	$G = 0$	N/A, Yes
$y < z$	Default opt-out, no requirement, user does not sell info	$U = CS = x$	$G = 0$	N/A, No
$x > z, y > z$	Change of benefit by the removal of the requirement	$\Delta U = y > 0$	$\Delta G = -y < 0$	Yes, Yes
$x > z > y$	Change of benefit by the removal of the requirement	$\Delta U = z > 0$	$\Delta G = -y < 0$	Yes, No
$y > z > x$	Change of benefit by the removal of the requirement	$\Delta U = x + y - z > x > 0$	$\Delta G = 0$	No, Yes
$z > x, z > y$	Change of benefit by the removal of the requirement	$\Delta U = x > 0$	$\Delta G = 0$	No, No

In terms of participation in the provision of data to Google, all four possibilities arise: users who accepted the requirement and sell personal without the requirement, users who accepted the requirement and refuse to sell without the requirement, users who rejected the requirement and sell in its absence, and users who rejected the requirement and do not sell in its absence.²⁸³⁵

²⁸³⁵ To understand this better, we provide examples of the four possible cases. Consider a user with $(x, y, z) = (2, 3, 1)$. Since $y > z$ and $x > z$, the user participates under the requirement and also sells his/her data without the requirement. Similarly, with $(3, 2, 1)$: $y > z$ and $x > z$ implying that the user participates under the requirement and also sells his/her data in its absence. Alternatively, consider a user with $(x, y, z) = (1, 3, 2)$. This user would not participate under the requirement since $x < z$, but would sell his/her data in its absence since $y > z$. Also consider user $(x, y, z) = (3, 1, 2)$. Since $x > z$, he would participate under the requirement, but would not sell their personal information in its absence since $y < z$. There are also those who would not participate under the requirement since $x < z$ and also would not participate in its absence

Several observations are in order. First, users are better off and Google is worse off when the requirement is removed and there is competition in the personal data market, $\Delta U > 0$, $\Delta G \leq 0$. Users are better off because they have more choice and they are not constrained by the Google-imposed requirement. Google is worse off because it can extract less surplus from the users.

The second observation is that removing the requirement does not kill Google's business or its business model. There is a wide range of parameters for which users sell their personal data under no requirement, including some who would not participate in the market under the requirement but are won over by the positive price Google offers in its absence. The users who cannot be won over by Google in the absence of the requirement are only those who value their privacy more than Google values their data ($z > x$, $z > y$). And among those value their privacy more than Google values their data ($z > y$), there are some who were participating under the requirement, but having been freed from the requirement do not sell their data at prices Google are willing to offer ($x > z > y$).

The third observation is that the market for acquisition of personal data by Google works well and has the various features of a functioning economic market. For example, there is variation in the willingness to pay defining a demand curve, and, given an offer price by Google, some users participate in the market at the price offered by the buyer while others do not.

We have shown that a vibrant market for personal information sold to Google has been killed through Google's practice to impose provision of personal data as a requirement for access to Google's Internet search service. This is a "market failure" and can be fixed by antitrust authorities in the US, the EU, and other jurisdictions.²⁸³⁶

We have shown that users are worse off, and Google is better off under the requirement. Assuming that people can determine rationally if it makes sense to provide their data, absence of the requirement will lead to the users being paid by the digital platforms for harvesting of their data. Removing the requirement improves consumer surplus as the price of data is positive in its absence since users get paid for selling their data to the platform. Typically, this will also lead to more data being collected.

We now discuss a third regime where, after opt-out, Google remains a monopsonist in the market for personal data and then compare it with regimes 1 and 2.

In this third regime, Google is able to charge a price for search and a second price for the provision of personal data. We assume that the price for search may not fully extract the benefit of search for the user, possibly because of competition with rival browsers. So, when the user uses Google Internet search but does not allow Google to use his/her personal data, the user has a benefit $x - p_1$, where the price charged by Google for search only is $p_1 = kx$, $0 \leq k \leq 1$. $k = 1$ is the special case when Google is able to extract the full benefit of the user from Internet search. It is likely that perfect price discrimina-

since $y < z$, for example $(x, y, z) = (1, 2, 3)$ or $(2, 1, 3)$.

2836 The analysis for Facebook is very similar.

tion in the search market would not be possible, so it is reasonable to expect that k will be less than 1.

In this case, the consumer surplus and Google's benefit from the search market are

$$U = CS = (1 - k)x > 0 \text{ if } k < 1, G = kx.$$

All users will buy search from Google as long as $k < 1$.

Google offers payment p_2 to users who are willing to sell their personal data to it. Then the user's utility and Google's benefit are:

$$U = CS = x - z - p_1 + p_2 = x(1 - k) - z + p_2, G = y + kx - p_2$$

since he/she benefits from the Internet service by $\$x$, loses $\$z$ for losing privacy, pays $p_1 = kx$ for search and receives p_2 as monetary compensation from Google for selling his/her personal data. Google receives the personal data which it values at y , charges p_1 for search and pays p_2 to the user for providing that data. Therefore, the benefit to Google is $G = y + kx - p_2$.

If $y > z$, that is, if the value of the personal data of the user to Google is higher than the value of loss of privacy to the user, Google can offer up to $\$y$ and be better off than when no data is provided. Since Google is dominant and knows the user so well that it can practice perfect price discrimination in the market for the provision of personal data, it will offer the lowest possible amount of money that will make the user provide data, by making his/her utility slightly higher than $U = x(1 - k)$, which is the utility of no data provision. Therefore, Google will offer to the user $p_2 = z$ to buy his/her data, resulting in:

$$U = x(1 - k) - z + z = x(1 - k) > 0, G = y + kx - z > 0.$$

Notice that Google's payment for personal data as a monopsonist $p_2 = z$ is smaller than the amount it pays $p_2 = y$ when it faces competition in the personal data market in regime 2.

For users with $y < z$, the maximum offer Google can make to induce data provision, $\$y$, will not be accepted by the user because it would result in lower user utility than when the user does not provide data:

$$U = x(1 - k) - z + y < (1 - k)x.$$

Therefore, when $y < z$, the user does not provide data and the user's utility and Google benefit are

$$U = CS = x(1 - k), G = kx.$$

The results of the no requirement regime with Google monopsonist are summarized in Table 11.3a.

Table 11.3a: No requirement, default opt-out, personal data provision to Google not required to provide Google search, Google perfectly price discriminating monopsonist in personal data market

		Benefit to user	Benefit to Google
$y > z$	User provides data at price $p = z$	$U = CS = x(1 - k) > 0$	$G = y - z + kx > 0$
$y < z$	When the user values his personal data loss more than Google values the user's data, the user does not sell his/her personal data	$U = CS = x(1 - k) > 0$	$G = xk$

Table 11.3b compares the changes in the user's and Google's benefit across regimes 1 and 3.

Table 11.3b: Comparison of the status quo to opt-out default and Google monopsonist of personal data

Parameter values	Regime	Benefit to user	Benefit to Google	Participation in personal data market, in regimes 1, 3
$x > z$	Default opt-in, requirement, and user accepts	$U = CS = x - z > 0$	$G = y > 0$	Yes, N/A
$z > x$	Default opt-in, requirement, and user rejects	$U = CS = 0$	$G = 0$	No, N/A
$y > z$	Default opt-out, no requirement, user sells info	$U = CS = x(1 - k) > 0$. When $k = 1$, $U = 0$	$G = y - z + xk > kx$. When $k = 1$, $G = y - z + x > x$	N/A, Yes
$y < z$	Default opt-out, no requirement, user does not sell info	$U = CS = x(1 - k) > 0$. When $k = 1$, $U = 0$	$G = xk$. When $k = 1$, $G = x$	N/A, No
$x > z, y > z$	Change of benefit by the removal of the requirement	$\Delta U = z - kx$. When $k = 1$, $\Delta U = z - x < 0$	$\Delta G = -z + xk < 0$. When $k = 1$, $\Delta G = -z + x > 0$	Yes, Yes
$x > z > y$	Change of benefit by the removal of the requirement	$\Delta U = z - kx < 0$. When $k = 1$, $\Delta U = z - x < 0$	$\Delta G = -y + xk$. When $k = 1$, $\Delta G = x - y > 0$.	Yes, No
$y > z > x$	Change of benefit by the removal of the requirement	$\Delta U = x(1 - k)$. When $k = 1$, $\Delta U = 0$.	$\Delta G = y - z + kx$. When $k = 1$, $\Delta G = x - z < 0$.	No, Yes
$z > x, z > y$	Change of benefit by the removal of the requirement	$\Delta U = x(1 - k)$. When $k = 1$, $\Delta U = 0$.	$\Delta G = xk$. When $k = 1$, $\Delta G = x > 0$.	No, No

Table 11.4: Comparison of Google monopsonist in personal data market (regime 3) to Google in competitive personal data market (regime 2)

Parameter values	Regime	Benefit to user	Benefit to Google
$y > z$	Default opt-out, no requirement, user sells info, G monopsonist (regime 3)	$U = CS = x(1 - k) > 0$. When $k = 1$, $U = 0$	$G = y - z + xk > kx$. When $k = 1$, $G = y - z + x > x$
$y > z$	Default opt-out, no requirement, user sells info, personal data market competitive (regime 2)	$U = CS = x + y - z > x > 0$	$G = 0$
$y < z$	Default opt-out, no requirement, user does not sell info, G monopsonist (regime 3)	$U = CS = x(1 - k) > 0$. When $k = 1$, $U = 0$	$G = xk$. When $k = 1$, $G = x$
$y < z$	Default opt-out, no requirement, user does not sell info personal data market competitive (regime 2)	$U = CS = x$	$G = 0$
$y > z$	Change of benefit from 3 to 2 (2 minus 3)	$\Delta U = x + y - z - x(1 - k) = y - z + xk > kx > 0$	$\Delta G = -(y - z + xk) < -xk < 0$
$y < z$	Change of benefit from 3 to 2 (2 minus 3)	$\Delta U = x - x(1 - k) = kx > 0$	$\Delta G = -kx < 0$.

Table 11.4 shows clearly that competition in the personal data market makes users better off and Google worse off in comparison to Google being a monopsonist in the personal data market. This is as expected. It underlines the fact that removing the requirement is not sufficient.

The analysis above shows the need for strict remedies that would restore competition on the marketplace, and therefore going beyond the removal of the requirement.

11.2.2. Natural monopoly or natural oligopoly and market failure in privacy

Contrary to the repeated statements by some,²⁸³⁷ Internet search exhibits network effects because a higher number of search queries improve the quality of search of the particular search engine.²⁸³⁸ Thus, the higher market share of Google in search increases the quality and value to a user of Google's search. This is direct evidence of network ef-

2837 See, H.R. Varian, Use and Abuse of Network Effects (September 17, 2017), available at SSRN: <https://ssrn.com/abstract=3215488> ; C. Tucker, Why Network Effects Matter Less Than They Used To, Harvard Business Review (June 22, 2018), available at <https://hbr.org/2018/06/why-network-effects-matter-less-than-they-used-to> .

2838 This is particularly true for idiosyncratic queries (tail queries). For a discussion, see, I. Graef, EU Competition Law, Data Protection and Online Platforms – Data as Essential Facility (Kluwer, 2016), Section 2.4.2.

fects: higher market share of the service increases the value of the service to the user. Also, when data provision is required for search, the more users you have, the more data you collect, and therefore the company can sell more valuable ads.

Google's requirement of personal data provision to receive Internet search implies that as more people use Google search, Google receives more personal data. So, Google uses its large market share in search in combination with the requirement to increase its market share in data (and enhance its dominant position). As we explained in the previous Section, the requirement increases the ability of Google to refine its categorization of a person, thereby increasing the amount that advertisers are willing to pay. This increases its profitability.

Data collected directly from the individual user, data from the location of the individual, data from Google's virtual assistant Alexa, publicly available data (for example Census data), and data bought from data brokers are combined by Google to refine data sold directly to advertisers and other intermediaries. Google would not have paid for such data had these been not useful and their usefulness is the complementarity they offer in order to make better predictions.

Size and high market share matters for both advertised-based platforms, Google and Facebook. First, we have the direct network effect of adding a user to Google because the addition improves search results for every Google user (and the addition of a Facebook user improves the Facebook experience for all users). Additionally, the requirement of personal data provision to receive Internet service improve the accuracy of data that Google and Facebook sell to advertisers and help increase the market share of each of these companies in the advertising market. So,, the more users you have, the more the users you have in search, the more the advertisers you attract on the other side, and the more valuable it is for the advertisers to use Google on the other side.

Traditionally network effects are defined as pertaining to the demand side of the market, while increasing returns to scale is a term reserved for decreasing unit cost at constant quality in production. Here, the scale of operation and the quality level of the company in the advertising market both increase with the provision of personal data by more users. More users are providing personal data under the requirement aiming to reap the direct network effects in search. The requirement implies that higher scale in consumption of Google's Internet search results in higher quality in the advertising market. The requirement transforms a purely demand-side network effect to a supply-side effect.

With regard to advertisers/data brokers, Google may have monopsony power at the brokers side, in comparison to Microsoft, therefore they can buy the data more cheaply, thus reinforcing their monopsony and monopoly with regard to advertisers

With regard to users, Google is also monopsony for the users even if it does not charge them. As shown earlier, we expect to have higher participation of users selling their data to Google under untying. That could have been positive if that was a traditional monopsony, but this market is not a traditional monopsony because, under tying, Google fixed the market price to zero rather than it being determined as in the traditional mon-

opsony model (endogenous determination). Additionally, under untying, Google offers personalized pricing, again deviating from the traditional monopsony model.

We showed at the previous Section that users are worse off and Google is better off under bundling. Assuming that people can determine rationally if it makes sense to provide their data, a competitive market in the data collection from users, will lead to the users being paid by the digital platforms for the harvesting of their data. Unbundling improves consumer surplus over bundling as the price of data is positive under unbundling since the users get paid for selling their data to the platform and this will also lead to more data being available and collected.

Note that someone that values privacy as a deontological principle (values the idea of privacy) would find problematic that users have the possibility to share their own data, and would be in favour of suppressing data output. In this case a monopsony may not be welfare reducing. There are also issues with regard to the assumption that users are able to rationally determine what is in their long-term interest, as the long-term effects of sharing data may not be easily assessed. They may be inclined to share data, in particular if they receive payment for this, which they may likely regret, had they considered their long term interests. The above could build a behavioural economics critique to the idea that consumers should be paid for their data, and build an argument that monopsony might be efficient, from a social welfare perspective.

An argument could thus be made for nudging users to opt out, rather than to select to receive rewards/positive prices for their data if they cannot determine the long-term costs of sharing their own data. Another option would be to nationalize the dominant digital platform (private monopoly) so as to replace it with a 'public interest' motivated monopsonist, which would limit the harvesting of data to what is absolutely necessary for the improvement of the service to the user (hence, the full consumer surplus would go to the user). However in this case, there may be some costs to innovation. This may be avoided if this state monopolist has the obligation to share data in situations in which this will lead to socially useful innovations by complementary firms, and therefore the social value of information outweighs the social cost of the loss of privacy for the individual user. There is always a risk that determining what is 'socially useful' would be sub-optimal if this is done by a regulator or a state monopolist in view of the discretion offered to the regulator/state monopolist and consequently the risk of capture and inefficiency (this is a classic criticism to administered economy). Hence, some other system of determining what is socially useful may be more preferable. Some authors have put forward quadratic voting as a procedure to overcome the tyranny of the majority (here citizens that are indifferent to the protection of their privacy) and provide proportional weight to people whose interests in a social outcome are stronger (people that greatly value privacy).²⁸³⁹ Quadratic voting is not subject to the criticisms by Arrow to the voting theory of welfare for collective decision-making in order to determine the 'will of the people,' as it does not assume ordinal preferences as Arrow in his impossibility theorem.

2839 E.A. Posner & E.G. Weyl, *Voting Squared: Quadratic Voting in Democratic Politics*, (Coase-Sandor Institute for Law & Economics Working Paper No. 657, 2014).

One may also refer to historical patterns in the industry in order to assess how rising concentration and dominance may have found their source in conduct and business strategies harming privacy, rather than competition on the merits, or may have reinforced the dominant position of the firm by erecting important barriers to entry through the control of important amounts of data. With regard to the social media industry, Srinivasan argues that during the time the social network market was highly competitive, with several hundreds of social networks available to users in 2007, including competing offerings from Google, Yahoo and MySpace, privacy was an important parameter of competition. However, the landscape changed sharply in recent years, predominately because of the business strategy of Facebook.²⁸⁴⁰ Srinivasan narrates how Facebook initially entered the social media market in 2007 putting forward its 'superior' privacy-centered offer, linked to the fact that it was a 'closed communication network' requiring users to join and disclose their information before being able to have access to the network, than existing dominant social networks at the time, such as MySpace. During this more competitive period, Facebook provided users the ability to opt-out of having their information shared with third-parties, including advertisers or marketers and promised them it would remove their information on demand.²⁸⁴¹ Any effort by Facebook to track users' behaviour, through its advertising product Beacon, or subsequently social plugin products, was unsuccessful, as it led to users' backlash and Facebook had to withdraw the product and change its privacy policies, by including a commitment to allow users to vote on future changes that contractually change user privacy.²⁸⁴² However, after a decade of 'false statements' and 'misleading conduct', reneging on previous promises not to track users, Facebook was able to leverage the superior information it has over its users in order to sell more advertising, with the result that the market for digital advertising has been transformed to a duopoly, dominated by Facebook and Google, the two companies accounting for 90-99% of year-over-year growth in the US digital advertising industry.²⁸⁴³

Facebook also secured the cooperation of independent publishers and other businesses participating to its ecosystem requiring all businesses to 'change their own privacy policies to extract from their own users the consent to have Facebook track them for commercial purposes.'²⁸⁴⁴ More importantly, the author claims that Facebook was able to change its privacy policy towards a more active use tracking, after it won against competing social networks, with rivals such as Snapchat and Orkut marginalized or excluded from the market, and consolidated its dominant position on the social media market, in particular during the period after 2014. Hence, privacy-reducing policies were possible only because the users had no other choice of social network to switch to and were thus the direct result of Facebook's dominance on the social media market.

2840 D. Srinivasan, The Antitrust Case Against Facebook (September 10, 2018). Berkeley Business Law Journal Vol. 16, Issue 1, Forthcoming, available at SSRN: <https://ssrn.com/abstract=3247362>.

2841 Ibid.

2842 Ibid.

2843 Ibid.,

2844 Ibid.

11.2.2. Lock in and Hold up

Research focusing on explaining the reasons that users would switch to a different social network from the one they currently used shows that users do not switch among social media, providers for privacy reasons, but that such decisions are motivated by a number of different factors.²⁸⁴⁵ This research however dates from the period before the change of the dominant business model in social media in 2014 with Facebook moving to systematically monitoring and recording users' activity, as well as the backlash and the increasing awareness of users about issues of privacy and personal data protection. Users may be less open to share information on social media and take increasingly action to monitor their browser data and the information they share.²⁸⁴⁶ Ad blockers have also gained in popularity. However, this has not greatly affected users' switching to more privacy-centred social media, nor has it led to the development of 'pay for privacy' business models, where users will pay for service with money rather than with their data.²⁸⁴⁷ Although not related as such to social media, research also shows that user inertia determined by 'cognitive, affective, and subconscious antecedents' may also play as a mooring factor and affect consumers' switching behaviour.²⁸⁴⁸ Identity network effects may also impact on the decision of users to switch, in particular if most of their friends are participating to the platform they want to switch from, hence creating sunk costs for the user if he decides to switch to a rival social media platform.²⁸⁴⁹ Such path dependency and the switching costs arising out from the buyer side contribute to the development of highly concentrated market structures. Single homing is also quite prevalent, in particular in view of the development of 'path dependent consumption,' with users developing consumption patterns which they are reticent to change, each additional consumption of the same product reinforcing the effect and leading to a quite strong loyalty effect, the user being emotionally or subconsciously locked in a specific product or digital platform, even if the choice is not optimal, in terms of quality or the amount of personal data harvested²⁸⁵⁰.

2845 C. Zengyan, Y. Yinping & J. Lim, *Cyber Migration: An Empirical Investigation on Factors that Affect Users' Switch Intentions in Social Networking Sites*, Proceedings of the 42nd Hawaii International Conference on System Sciences (2009), available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.402.4797&rep=rep1&type=pdf>;

2846 See, <https://www.emarketer.com/content/how-social-media-users-have-and-have-not-responded-to-privacy-concerns>

2847 See, <https://www.emarketer.com/content/how-social-media-users-have-and-have-not-responded-to-privacy-concerns>

2848 Y. Sun, D. Liu, S. Chen, X. Wu, X-L. Shen, X. Zhang, *Understanding users' switching behavior of mobile instant messaging applications: An empirical study from the perspective of push-pull-mooring framework*, (2017) 75 *Computers in Human Behavior* 727.

2849 J. Mahmoodi, J. Čurdová, C. Henking, M. Kunz, K. Matić, P. Mohr & M. Vovko, *Internet Users' Valuation of Enhanced Data Protection on Social Media: Which Aspects of Privacy Are Worth the Most?*, (2018) 9 *Front Psychol.* 1516.

2850 See, S. Lee, *Economic Dependence on Online Intermediary Platforms and Its Exploitative Abuse* (January 1, 2019). LL.M. Dissertation, Faculty of Law, University of Amsterdam, available at SSRN: <https://ssrn.com/abstract=3343370> citing, inter alia, work by S. Siray, 'Combining marketing theory and path dependence' (Freie Universität Berlin 2016) and B.K. Schulte, *Staying the Consumption Course – Exploring the Individual Lock-in Process in Service Relationships* (Springer, 2015).

11.2.3. Information asymmetries and information related failures

Under complete information, the user knows (x) his/her valuation of Facebook's services. But is this really the case? At present, the user does not pay for the access to Facebook. Facebook is a 'free' product in terms of monetary payment. However, the user pays (has a cost) by providing personal data to Facebook for free. This may reduce the user's privacy or may enable the digital platform or whoever else is controlling this data to exploit the user in the future by personalised pricing etc. Hence, there is an issue of transparency of the full costs for the user of the engagement with Facebook. The user just sees the current monetary costs (zero) and does not take into account future costs. Behavioural economic literature on discounting, silver lining effect (the users are attracted by a small gain – zero price to use Facebook – and dissociate that from a large loss – been exploited in the future through perfect price discrimination) may explain why we need to take seriously into account behavioural biases.

Our model also takes into consideration the cost of losing privacy. So, the user is willing to pay \$x for using Facebook, but the take-it-or leave-it contract of Facebook implies that he will lose privacy that he values at \$z. So, the net willingness to pay of a user under the present default opt-in conditions is \$x-z. If the default was opt-out, the user would be willing to pay \$x. In a behavioral setup, the user may underestimate the value of the loss of privacy.

Users do not know how much their data is valued by advertisers/Facebook as they have no access to the information on the value of that data in the context of Facebook's transactions with advertisers and infomediaries at the other side of the platform.

Digital platforms argue that data harvesting and network effects also provide value to the users. However, it is not clear what is the exact value of the network effects from which benefit the users. But even assuming that the data is valuable because of network effects, it is difficult to determine the part of the value that represents the individual contribution brought by the data of the specific user. The user anyway gets better service as his data may enable the platform to provide more relevant queries in some cases and to improve the quality of search for tail queries. The issue is however if the platform collects more data than is needed for improving the service or the quality of the platform: the extra harvesting of data creates 'behavioural surplus' that will itself be highly valued in behavioural futures markets²⁸⁵¹, as explained in Chapter 4.

The lack of competition between networks does not provide information (transparency) about how much the user is valued by digital platforms, such as Facebook, so that the users could have information enabling them to bargain a 'better' deal. This leads to no surplus left for users as it affects the ability of users for collective action against the monopolist, for instance by switching to a rival network. In any case, the choice may be quite limited, in view of the consolidation of the sector, and in particular the dominance of the advertised-based model.

2851 See Chapter 4 and, in more detail, S. Zuboff, *The Age of Surveillance Capitalism* (Public Affairs, 2018).

To this, one may add the social costs of the lack of knowledge by the user of the broader social costs of letting their data being harvested by Facebook or Google: costs to democracy and pluralism, which may be an important concern, also for competition law, in some jurisdictions

11.2.4. Missing markets

The previous examples of market failure assume that there are privacy markets, but these operate inefficiently. One may however argue that the problem is more fundamental to the extent that there are no markets whatsoever. Contrary to the assumptions of the first fundamental theorem of welfare economics, there does not exist a complete set of markets for privacy, data or attention, which are demanded and supplied to be traded at publicly known prices. Actually, data is harvested by search engines for free, as users are not paid any compensation for the data they contribute, with the exception of the free use of the search engine, for which in any case the marginal costs are close to zero. The users cannot also determine what is the value of their data to the digital platform (e.g. Facebook), as they do not have access to the information on transactions between Facebook and advertisers at the other side of the platform. At the same time, the harvesting and use of their personal data may provide to users some benefits if they are offered targeted advertising (which may be positive in case one adheres to the information view of advertising) and a more personalised service. The price that advertisers pay Google or Facebook do not provide any further information as these transactions are not about the users' personal raw data but about inferences made on the basis of their data.

Hence, it appears that the digital economy is characterized by missing markets²⁸⁵², because of the lack of property rights on personal data. Legal regimes may choose to protect entitlements by granting property rights, through a liability rule and regulation, or a combination of the two. If the situation is subject to liability rules, the violation of the specific entitlement to privacy without agreement, should lead to the compensation of the victim for the damages incurred. Property rights provide to their holder the right to legally bar, by injunctive relief, anyone violating his entitlement without his consent. The idea is that the violation of property rule is severely punished with injunctive relief (which is costly), thus deterring the violation of the entitlement at the first place and therefore avoiding future harms. A liability rule is more backwards looking as the aim is to compensate through damages for harm already done. A property rule will always be more favorable toward the injuree (the person whose entitlement is to be violated), and a liability rule will always be more favorable toward the injurer. Property rights also facilitate bargaining.

The allocation of property rights should nevertheless not impose an externality. This may be the case if providing property rights could, for instance, lead some to forego

2852 See, on the problem in general, G.M. Hodgson, How mythical markets mislead analysis: an institutionalist critique of market universalism, (2019) Socio-Economic Review, mwyy049, <https://doi.org/10.1093/ser/mwyy049>.

privacy for instant gratification, with devastating long-term consequences, not only for them personally, but also for society overall. One may for instance envisage the social costs engendered by an entity that has induced users to provide freely, or sell their personal data, in order to manipulate them more easily, because of the reduction of the levels of privacy protection, and thus extract more surplus from users. As mentioned above the lack of property rights and therefore the missing markets issue may not allow parties to negotiate a Pareto efficient transaction. If such social costs are important, there is also an argument for banning such transactions, thus making personal data inalienable. In our view, the level of development of the digital economy does not render this a pragmatic option to follow at this stage.

The lack of a proper regime of property rights on personal data has important implications on the ability of users to protect their interests and capture a part of the surplus value they contribute to. At the same time, digital platforms are able to rely on a quite expansive definition of the domain of intellectual property law and contract law in order to impose almost unilaterally conditions to the users of their products, in practice challenging their autonomy and their freedom to use as they wish their tangible property. The lack of a proper property regime for personal data has enabled digital platforms to harvest this valuable raw material, without any corresponding protection of the interests of the users, by just relying on their consent to their terms and conditions. The possession of this data does not rely on a properly defined property regime (hence the distinction between possession and property rights) but on the control by these digital platforms of important bottlenecks in the way users access the Internet and the various services this may give them access to. The GDPR does not put in place a proper property rights regime for personal data, which would have granted formal rights sanctioned by a public authority, delimited the boundaries of these rights, or establish a system to adjudicate disputes as to the ownership of these rights. Having possession of the item, in the sense of physically controlling it, constitutes just one of the bundle of rights provided by property and ownership, other expressions of the right to property being the ability to use and manage it, the right to receive income from it, the possibility to use it as capital for the production of income, the possibility to use it as security in order to borrow against it. This is still not possible for personal data.

11.3. Exploitative and exclusionary conduct involving privacy-related theories of harm: *ex ante* and *ex post* enforcement

The development of the digital economy leads to an increasing interest of competition authorities for privacy-related theories of harm, both in *ex ante* and *ex post* enforcement. We will explore the various theories put forward and the limits of the existing legal tools to address these new theories of harm.

11.3.1. Ex ante enforcement: data mergers and privacy

It is generally accepted that merger control should take into account the fact that access to personal data may constitute an important source of market power.²⁸⁵³ The recognition of privacy-reducing theories of harm is nonetheless a more complex issue, in particular in view of the *ex ante* nature of merger control and the possibility to address privacy restrictions of competition ex post through the enforcement of data protection laws. The possibility that a merger may be considered anticompetitive because it may lead to a substantial lessening of competition on privacy, or more broadly may have negative consumer welfare effects because of a restriction of the level of privacy in the market, was explored in some recent merger decisions in the EU and the US. As a starting point, we note that both US and EU merger guidelines explicitly recognize non-price factors of competition²⁸⁵⁴. In both jurisdictions such factors may often be considered at the level of market definition, rather than at the later stage of determining theories of harm. However, as a recent OECD report notes, '(t)hese market definition approaches have not been explicitly applied in any merger case to date'²⁸⁵⁵.

We will focus here on the second issue, the first being relatively uncontroversial and not presenting anything specifically different than the traditional approach to mergers²⁸⁵⁶. With regard to privacy concerns, the dominant view is to consider this as a parameter of competition in quality. In this context it can be integrated in the competition assessment under a 'consumer welfare' standard, broadly defined²⁸⁵⁷. However, this approach may be subject to criticism²⁸⁵⁸, and is not the only available option, as we will examine in X.

Starting with the EU, in the *Facebook/WhatsApp* merger, a possible theory of harm explored by the Commission was that 'the merged entity could start collecting data from

2853 See, for instance, M Stucke & A Grunes, *Big Data and Competition Policy* (OUP, 2016), chapters 6–8.

2854 See, for US Guidelines, U.S. Dep't of Justice and the Fed. Tr. Comm'n, *Horizontal Merger Guidelines* §4.0 (2010), available at <https://www.ftc.gov/sites/default/files/attachments/merger-review/100819hmg.pdf> (noting that 'enhanced market power can also be manifested in non-price terms and conditions that adversely affect customers, including reduced product quality, reduced product variety, reduced service, or diminished innovation. Such non-price effects may coexist with price effects, or can arise in their absence' and that '(w)hen the agencies investigate whether a merger may lead to a substantial lessening of non-price competition, they employ an approach analogous to that used to evaluate price competition); for the EU, see .

2855 OECD, *Considering non-price effects in merger control* – Background note by the Secretariat, DAF/COMP(2018)2 ¶112.

2856 See, for instance, the US submission to the OECD's workshop on Non-price effects of mergers, ¶9 (noting that '(e)vidence of the extent of direct competition between the products sold by the merger parties on non-price factors is often the same evidence relied on to determine customer substitution relevant to the hypothetical monopolist test').

2857 For a discussion, see OECD, 'The Role and Measurement of Quality in Competition Analysis' DAF/COMP(2013)17 <<http://www.oecd.org/competition/Quality-in-competition-analysis-2013.pdf>> accessed 21 October 2018. The existence of a trade-off between these various parameters of competition protected by the 'consumer welfare standard' is an open question, in particular as 'the superficial consensus' on consumer welfare 'masks a deep disagreement about what 'consumer welfare' means and especially about what policies best to promote it': G Werden, 'Consumer welfare and competition policy' in J Drexler, W Kerber and R Podszun (eds), *Competition Policy and the Economic Approach: Foundations and Limitations* (Edward Elgar 2011) 15

2858 See, the discussion in OECD, *Considering non-price effects in merger control* – Background note by the Secretariat, DAF/COMP(2018)2 ¶¶ 113–119.

WhatsApp users with a view to improving the accuracy of the targeted ads served on Facebook's social networking platform to WhatsApp users that are also Facebook users'²⁸⁵⁹, thus strengthening Facebook's position in the provision of online advertising services as a result of the increased amount of data which will come under Facebook's control.²⁸⁶⁰ However, the Commission found no concern with regard to the strengthening of Google's position in the online advertising service market, as there was a sufficient number of alternative providers of online advertising services and a significant number of market participants that collected user data alongside Facebook, not least Google. This left, according to the Commission, a large amount of Internet user data that are valuable for advertising purposes outside Facebook's exclusive control.²⁸⁶¹ However, the Commission did not take sufficiently into account the possibility that the data collected by Double/Click, which contained information about a rich sub-set of the web-browsing behaviour of Double/Click users across all publishers' websites engaged in targeted advertising, could facilitate online price discrimination, enhancing the power of the entity to exploit consumers. The Commission accepted DoubleClick's justification that it collected behavioural data from its users for only legitimate purposes, such as improving the overall experience offered to advertisers, and the fact that these were aggregate data that could have been of limited use because of the confidentiality clauses included in the contractual arrangements with both advertisers and publishers and the possibility of Doubleclick's customers to switch to alternative ad serving providers in case Doubleclick violated the confidentiality provisions²⁸⁶². The Commission unconditionally cleared Google's acquisition of DoubleClick finding no competition concerns on any of the relevant advertising-related markets. However, it also recognized that

'it is not excluded that (...) the merged entity would be able to combine DoubleClick's and Google's data collections, e.g., users' IP addresses, cookies IDs, connection times to correctly match records from both databases. Such combination could result in individual users' search histories being linked to the same users' past surfing behaviour on the internet (...) the merged entity may know that the same user has searched for terms A, B and C and visited pages X, Y and Z in the past week. Such information could potentially be used to better target ads to users'²⁸⁶³.

However, the Commission did not focus on the exploitation concerns, dismissing the possibility that the acquisition of WhatsApp by Facebook would enable Facebook to use WhatsApp user data to better target Facebook ads, the Commission doubting on whether Facebook would have the ability and the incentive to engage in such conduct post-transaction. The impact of the merger on privacy was also sidelined. According to the Commission, '(a)ny privacy-related concerns flowing from the increased concentration of data within the control of Facebook as a result of the Transaction do not fall within

2859 Facebook/ WhatsApp (Case No COMP/M.7217) C(2014) 7239 final, para 180.

2860 Ibid., para 184.

2861 Ibid., para 189.

2862 Ibid, para 277.

2863 Ibid, para 360.

the scope of the EU competition law rules but within the scope of the EU data protection rule.²⁸⁶⁴ The Commission focused on the exclusionary/anticompetitive foreclosure related concerns, leaving any possible exploitation concerns, in terms of impact on users' privacy to be dealt by data protection law.

In August 2016, WhatsApp updated its privacy policy to allow for linking WhatsApp users' phone numbers with Facebook users' identity. Hence, the previous statement at the time of the assessment of the merger was proven to have been misleading. Indeed, at the time the merger transaction was assessed, Facebook had offered assurances to the Commission, both in the notification form and in a reply to a request of information, that it would be unable to establish reliable automated matching between Facebook users' accounts and WhatsApp users' accounts. The Commission imposed a €110 million fine on Facebook for providing misleading information about the WhatsApp merger²⁸⁶⁵. It also found that, contrary to Facebook's statements in the 2014 merger review process, the technical possibility of automatically matching Facebook and WhatsApp users' identities already existed in 2014, and that Facebook staff were or should have been aware of such a possibility²⁸⁶⁶. However, this did not affect the Commission's authorisation of the merger as the clearance decision was based on a number of elements going beyond automated user matching.

In *Microsoft/LinkedIn*, the Commission raised two types of concerns relating to data combination.²⁸⁶⁷ One of the theories of harm was that the merged entity could integrate LinkedIn into Microsoft Office and thus combine, to the extent allowed by contract and applicable privacy laws, LinkedIn's and Microsoft's user databases, giving Microsoft's the possibility to shut out its competitors in the customer relationship management market. In particular, Microsoft could deny its competitors access to the full LinkedIn database, and thus prevent them from developing advanced customer relationship management functionalities also through machine learning. The Commission was not however convinced that access to the full LinkedIn database was essential to compete on the market and held that LinkedIn's product was not a 'must have' solution.²⁸⁶⁸

The second theory of harm was more directly concerned with data concentration and its effects on online advertising services. The Commission explored how the regulatory framework in the EU relating to data protection could mitigate some of the competition law concerns:

'(177) As a preliminary remark, it should be noted that any such data combination could only be implemented by the merged entity to the extent it is allowed by applicable data protection rules. In this respect, the Commission notes that, today, Microsoft and LinkedIn are subject to relevant national data protection rules with

2864 Ibid, para 164.

2865 Facebook/WhatsApp, (Case COMP/M.8228), Commission Decision (May 17, 2017), available at http://ec.europa.eu/competition/mergers/cases/decisions/m8228_493_3.pdf.

2866 Ibid, para 86.

2867 Ibid., para 400.

2868 Ibid., para 277.

respect to the collection, processing, storage and usage of personal data, which, subject to certain exceptions, limit their ability to process the dataset they maintain. Currently, the data protection rules of the EU Member State(s) where Microsoft and LinkedIn have their registered seat and/or where they have subsidiaries processing data apply. [...]

(178) Moreover, the Commission notes that the newly adopted General Data Protection Regulation ('GDPR')²⁸⁶⁹ [...] provides for a harmonised and high level of protection of personal data and fully regulates the processing of personal data in the EU, including inter alia the collection, use of, access to and portability of personal data as well as the possibilities to transmit or to transfer personal data. This may further limit Microsoft's ability to have access and to process its users' personal data in the future since the new rules will strengthen the existing rights and empowering individuals with more control over their personal data (i.e. easier access to personal data; right to data portability; etc.).²⁸⁷⁰

In view of the GDPR, the Commission found that it was not likely that LinkedIn data could become in the next two to three years an important input in this market and that in any case, LinkedIn's privacy policy allowed it to share the personal data it collects, processes, stores and uses with third parties.²⁸⁷¹ Again in this merger, the Commission refused to consider exploitation concerns arising out of the higher concentration of data and the combination of LinkedIn and Microsoft's user databases, noting that the merger 'does not raise competition concerns resulting from the possible post-merger combination of the "data" (essentially consisting of personal information, such as information about an individual's job, career history and professional connections, and/or her or his email or other contacts, search behaviour etc. about the users of their services) held by each of the (p)arties in relation to online advertising'²⁸⁷²

Higher concentration of data could nevertheless have a potential impact to competition. The Commission found that the merger could lead to the marginalisation of XING, a competitor of LinkedIn which offered a greater degree of privacy protection to users than LinkedIn (or making the entry of any such competitor more difficult), therefore restricting 'consumer choice in relation to this important parameter of competition.'²⁸⁷³ To address the competition concerns identified by the Commission in the professional social network services market, Microsoft offered a series of commitments, which the Commission found to address the competition concerns identified and therefore conditionally cleared the merger. This case offers the possibility to conceptualise privacy as a parameter of competition that may eventually be subject to measurement²⁸⁷⁴.

2869 General Data Protection Regulation (EU) 2016/679 the protection of natural persons with regard to the processing of personal data and on the free movement of such data [2016] OJ L 119/1.

2870 Ibid., paras 177–178.

2871 Ibid., para 255.

2872 Ibid., para 176.

2873 Ibid., para 350. Indeed, the Commission had found that privacy was an important parameter of competition and driver of customer choice in the market for professional social networking services.

2874 K Bania, 'The role of consumer data in the enforcement of EU competition law' 2018 (January) European Competition

Privacy related theories of harm were also discussed in the recent merger between Apple and Shazam involved two companies providing complementary services (software solutions platforms and digital music streaming services for Apple and music recognition apps for Shazam)²⁸⁷⁵. The Commission explored if the fact that Shazam currently collects certain data on users of third party's apps, and in particular digital music streaming apps, installed on the same smart mobile devices where the Shazam app is installed (for both Android and iOS devices) and allows those of its users who are also users of Spotify to connect their Shazam account (anonymous or registered) to their Spotify account (freemium or premium), therefore enabling the Shazam app to identify its users, for example, the email address or Facebook identifier for registered Shazam users and the advertising identifier for anonymous Shazam users²⁸⁷⁶ could have 'a negative impact on competition'²⁸⁷⁷. In assessing this element, the Commission took into account 'certain legal and/or contractual limitations on the use of this customer information' by Apple post-merger²⁸⁷⁸. Without entering into an in-depth assessment, from the perspective of data protection law (GDPR), the Commission proceeded to an abridged analysis of Shazam's terms of service and privacy Notice to conclude that the purpose of this harvesting of personal data has been specified and made manifest to Shazam's users. The Commission also referred to the EU rules dealing with privacy and the protection of the confidentiality of communications, in particular the e-Privacy Directive, which may also affect the transmission of the customer information and its subsequent use²⁸⁷⁹. However, the Commission noted that the e-Privacy Directive does not prevent any technical storage or access for the sole purpose of carrying out the transmission of a communication over an electronic communications network, thus enabling Apple to lawfully store or have access to this customer information. Possible contractual limitations to the use of this data could emanate from the Android Developer Guidelines, which so far had provided Shazam access to data about which apps are installed on a user's Android device, or by rivals to the new entity, such as Spotify, which, according

Journal; E Deutscher, How to Measure Privacy-Related Consumer Harm in Merger Analysis? A Critical Reassessment of the EU Commission's Merger Control in Data-Driven Markets (2017). Faculty of Law, Stockholm University Research Paper No. 40. Available at SSRN: <https://ssrn.com/abstract=3075200>.

2875 Commission Decision, M.8788 – Apple / Shazam (November 11th, 2018), available at http://ec.europa.eu/competition/mergers/cases/decisions/m8788_1279_3.pdf.

2876 Ibid., para 199

2877 Ibid., para 219.

2878 Ibid., para 225. The Commission indeed refers to Article 5(1)(b) of the GDPR as indicating that 'personal data which has been collected for specified, explicit and legitimate purposes may not be further processed in a manner that is incompatible with those purposes' and that '(d)ata which qualifies as personal data under the GDPR can be processed by a third party only to the extent that there exists a contractual legal basis for the transmission to the third party and a legal basis for the processing by that third party.' Ibid., para 229.

2879 Ibid., paras 233-234. Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (e-Privacy Directive), [2002] OJ L 201/37, which, in Article 5(3), provides inter alia that Member States should ensure that the storing of information or gaining access to information already stored in the terminal equipment of a subscriber or user is only allowed on condition that the subscriber or user concerned has given his or her consent following clear and comprehensive information about the nature of data processing.

to their developer terms and conditions of service, may restrict the use of Spotify's user data by app developers and enforce it if, post-merger, Apple would aim to collect data for services that compete with those provided by Spotify²⁸⁸⁰. Notwithstanding these limitations, the Commission found that the new entity could collect this customer information lawfully and proceeded to the analysis of the incentive and ability of the new entity to use this customer information to put competitors at a competitive disadvantage²⁸⁸¹.

In the US, harm to privacy did not come up in the context of assessing merger activity, any issues being dealt with through Section 5 of the FTC Act condemning unfair or deceptive acts or practices in or affecting commerce.

11.3.2. Ex post enforcement: abuse of a dominant position or economic dependence

Restrictions on privacy may also be subject to *ex post* enforcement, in particular, but not exclusively the prohibition of an abuse of a dominant position²⁸⁸². We explore different theories of harm that may give rise to competition law concerns and suggest specific tests for their assessment.

11.3.2.1. Excessive data extraction

'Excessive' data extra may constitute a competition law concern for some competition law regimes to the same extent that excessive prices have been targeted by some competition authorities.

It is worth noting that excessive pricing as a competition law issue has been a quite controversial topic, with certain jurisdictions, in particular the US rejecting the possibility to bring an excessive pricing case when this may only be motivated by concerns about exploitation, rather than by concerns about collusion. Despite the recent extension of

2880 Ibid., para 237.

2881 Ibid., para. 238.

2882 It is also possible for agreements that restrict competition on privacy to also fall under the prohibition of anticompetitive collusive practices, to the extent that such an agreement will reduce competition on a parameter of competition, quality, which in some markets may be a quite significant factor of the competitive game. This is well accepted now for agreements restricting innovation, and it should be the same for agreements restricting privacy. To the extent that an agreement to restrict competition on privacy may not have any redeeming virtue, although its effect is certainly to reduce consumer welfare as, at least, it affects competition on quality, it is not unimaginable that a competition authority qualifies it as a restriction of competition by its nature, without any need to assess its anticompetitive effects in great detail. It remains, however, an open question if agreements of this sort between undertakings with relatively low market shares, or in a non-concentrated market, may be a cause of concern justifying the (rebuttable) presumption of anticompetitive effect that would result a qualification of such agreements or concerted practices as a restriction of competition by object. The approach currently followed by the EU courts in defining restrictions of competition by object, accepts that 'the real conditions of the functioning and the structure of the market or markets in question' may be elements to take into account in assessing restrictions of competition by object: see, most recently, Case C-179/16, F. Hoffmann-La Roche Ltd and Others v Autorità Garante della Concorrenza e del Mercato, ECLI:EU:C:2018:25, paras 79-80.

the scope of Section 5 FTC Act to some forms of hybrid excessive/exploitative practices in the context of Standard Setting Organizations (SSOs) or related to SEP royalties, in the presence of a previous commitment of the dominant firm to license essential proprietary technology on RAND terms²⁸⁸³ or in breach of the duty of good faith of a member of an SSO with regard to the standardisation process²⁸⁸⁴, US antitrust law does not apply to purely exploitative practices. Although this had always been the case,²⁸⁸⁵ it has been made clearer in *Verizon v Trinko*, the Supreme Court noting that “(t)he mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices – at least for a short period – is what attracts “business acumen” in the first place; it induces risk taking that produces innovation and economic growth.”²⁸⁸⁶

However, in the EU, and several other jurisdictions excessive pricing forms a well-accepted cause of action in competition law. In the EU, excessive prices may be found to infringe Article 102(a) TFEU which may apply to purely exploitative conduct (exploiting consumers directly without any requirement to prove any exclusionary conduct), in particular conduct that is ‘directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions.’

One may argue that similar principles could apply to an ‘excessive’ extraction of data. However, as Haucap explains ‘data is not like money’, as it ‘does not reduce the user’s ability to provide the same data to another service or multiple other services’; this is ‘a fundamental difference to excessive pricing cases where customers are left with less money/wealth once they have been exploited.’²⁸⁸⁷ As the German competition authority (Bundeskartellamt – BKA) has noted in its recent Facebook decision, ‘(p)ersonal data represent an unlimited commodity that is not used up by sharing and even consumers on a limited budget do not need to determine how much they are willing to pay.’²⁸⁸⁸

This analysis nevertheless ignores the impact data extraction may have on the reduction of privacy, not only because of the violation of the fundamental right of privacy but also from a purely user surplus perspective, to the extent that it enables the platform to predict the preference map and consequently the behaviour of the user. This provides the platform a structurally more powerful position in its future interactions with the us

2883 See, *Broadcom Corp. v. Qualcomm*, 501 F.3d 311 (3d Cir. 2007); *In re Robert Bosch GmbH*, File No. 121-0081 (November 26, 2012).

2884 See, *In the matter of Rambus, Inc.* (August 2, 2006), Docket No. 9302, pp. 34-35 available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>; *Rambus Inc. v. FTC*, 522 F.3d 456 (DC Cir. 2008), cert. denied, 129 S. Ct. 1318 (2009).

2885 See, for instance, *Berkey Photo, Inc v. Eastman Kodak Co.*, 603 F.2d 263, 294 (2nd Cir. 1979), cert. denied, 444 US 1093 (1980).

2886 *Trinko* case.

2887 See, J. Haucap, *Data Protection and Antitrust: New Types of Abuse Cases? An Economist’s view in light of the German Facebook Decision*, CPI Antitrust Chronicle (February 2019), 1.

2888 See, Bundeskartellamt, *Facebook decision* (2019), available at https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Entscheidungen/Missbrauchsaufsicht/2019/B6-22-16.pdf?__blob=publicationFile&v=5, para. 571.

ers and the ability to reduce consumer surplus (not only in terms of not satisfying the privacy preferences of users, but also in reinforcing the platform's capacity to impose different price discrimination strategies against them)²⁸⁸⁹. As the BKA also explains in its decision, 'the main problem' in the excessive extraction of data cases is that 'when consumers share their personal data, they are not really able to judge which and how many data are being collected by which company, to whom their data is being transmitted and what the implications of giving consent to data processing are.'²⁸⁹⁰ Users may be unaware that the extracted data is likely to facilitate their exploitation. The issue here will therefore be to decide if a prophylactic intervention focusing on excessive data extraction so as to avoid future instances of exploitation (eventually through different forms of personalised pricing and price discrimination) may be the preferable option, rather than addressing each of these instances of exploitation through the application of the relevant prohibitions on price discrimination or other forms of exploitative practices at a later stage. However, note that this will require also some re-conceptualisation of price discrimination in competition law, which is not usually prohibited as such.²⁸⁹¹

Alternatively, privacy may be considered as a personal good valued by the consumer, and therefore any privacy reduction may be tantamount to a form of consumer harm (reduction of quality). One may argue that if this is the case, the fact that the user does not switch platform, notwithstanding the 'excessive' extraction of data, signals that, either this extraction is not considered 'excessive' enough by the user, or that he values the services provided by the platform more than the inconvenience of reduced privacy, to the extent that the exchange is voluntary and from this exchange and the 'price' in terms of privacy reduction the user is ready to pay reveal his real preferences about the trade off. This assumes that the user is fully informed about the reduction of his privacy and that he is rationally proceeding to a trade off between the costs and benefits of using the platform. However, although early studies found that individuals will perform a 'privacy calculus' before disclosing information necessary to complete an e-commerce transaction, more recent work has shown that there is some cognitive dissonance between consumers' online behaviour (their revealed preferences) and their stated preferences for privacy, leading to the so called 'privacy paradox.'²⁸⁹² Users may value privacy, but do nothing to protect it.²⁸⁹³ Recent research also highlights the bounded rationality of consumers when performing this privacy calculus – in other words, consumers lack

2889 J. Haucap, Data Protection and Antitrust: New Types of Abuse Cases? An Economist's view in light of the German Facebook Decision, CPI Antitrust Chronicle (February 2019),

2890 Ibid., para. 571.

2891 See, however, the Robinson Patman Act of 1936 in the US, which prohibits sellers from engaging in price discrimination. In the EU, price discrimination may violate the Treaty provisions, essentially for considerations relating to market integration purposes.

2892 A.C. Acquisti, R. Taylor & L. Wagman, The Economics of Privacy, (2016) 54 Journal of Economic Literature 442; V. Benndorf & H.-T. Normann, The Willingness to Sell Personal Data, (2018) 120 Scandinavian Journal of Economics 1260.. 5 See Norberg P. A., D. R. Horne & D. A. Horne (2007), "The Privacy Paradox: Personal Information Disclosure Intentions versus Behaviors," Journal of Consumer Affairs 41, pp. 100-126.]

2893 S Barth, M DT de Jong, The privacy paradox – Investigating discrepancies between expressed privacy concerns and actual online behavior – A systematic literature review, (2017) 34(7) Telematics and Informatics 1038.

the bandwidth to compare the costs and benefits of sharing personal information.²⁸⁹⁴ The 'privacy paradox' is indeed a complex phenomenon the apparent discrepancy of people's concerns over their privacy and their online behaviours, such as bounded rationality, cognitive biases and heuristics, or social factors²⁸⁹⁵. Further, despite privacy notices, individuals may not always be aware of the data harvesting to which their personal information is subject as they rarely, if ever, read websites' Terms and Conditions (T&Cs) of service due to length, legalistic language and a 'take it or leave it' approach.²⁸⁹⁶ For want of any better alternative, 'tick, click and hope for the best' sums up most consumers' attitude. Through IoT users may in the future allow smart devices to engage in online transactions on their behalf based on learned preferences. A more systematic use of digital assistants might require default or adapted consent mechanisms.²⁸⁹⁷ Conversely, tech advances could lead to better results for consumers if, for example, artificial intelligence formed by learned consumer patterns was used to form buyer coalitions to seek better terms.²⁸⁹⁸

The main difficulty with the excessive data extraction claim is to determine what constitutes 'excessive' and therefore exploitative. In a traditional excessive pricing claim, the level of prices in a competitive market (on the basis of an estimation of the level of prices from a workable competition perspective) usually serves as the counterfactual. This of course depends on the 'economic value' of the product, as this is determined either by using a cost+ approach, that is adding up the different costs of the product, or by comparing the price with a comparable competitive market, which should be the preferred method in the context of an intangible economy. In the case of excessive data extraction, the counterfactual may more easily be established as the level of privacy enjoyed by the user in the absence of the specific conduct that is assessed as excessive. But one can also imagine a more abstract counterfactual which may broadly serve as the standard to determine the 'excessive' nature of the data extraction. This will relate to the purpose of the data extraction and how this affects the user's experience and therefore the 'quality' of the service provided. One may argue that the data extraction by

2894 Acquisti et al (2013 and 2016) suggest that consumers often prefer short term discounts over long term risk of disclosing personal information. John, L. K., & Loewenstein, G. (2013). What is privacy worth?. *The Journal of Legal Studies*, 42(2), 249-274 and Acquisti, A., Taylor, C., & Wagman, L. (2016). The economics of privacy. *Journal of Economic Literature*, 54(2), 442-92.

2895 For a literature review, see S. Kokolakis, Privacy attitudes and privacy behaviour: a review of current research on the privacy paradox phenomenon, (2017) 64 *Computers & Security* 122.

2896 See, for instance, the meta-study by J. Mou, D.-H. Shin and J. Cohen, "Trust and Risk in Consumer Acceptance of E-Services", (2017) 17(2) *Electronic Commerce Research*, 255; A recent CUTS International survey on privacy and data protection in India covering 2,400 respondents revealed that around 80 percent users were not reading privacy policies. Key reasons for the same were such policies being lengthy, language barrier, and too much legalese. see http://www.cuts-ccier.org/pdf/Advocacy-CUTS_Comments_on_the_draft_Personal_Data_Protection_Bill2018.pdf.

2897 See, G Contissa et al, Towards Consumer-Empowering Artificial Intelligence, Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence Evolution of the contours of AI. Pages 5150-5157. <https://doi.org/10.24963/ijcai.2018/714>.

2898 Some have coined the term 'algorithmic consumer' to convey the complexity of the decision process in the digital era of the Internet of Things ('IoT'): M. Gal and N. Elkin-Koren, "Algorithmic Consumers" (August 8, 2016). *Harvard Journal of Law and Technology*, Vol. 30, 2017. Available at SSRN: <https://ssrn.com/abstract=2876201>.

the platform should not be considered 'excessive' if the data is used, either to improve the product in order to respond to the needs of the specific user, if personalisation is welfare-enhancing, or in case the platform is employing an advertised-based model to better match advertisers and consumers, which improves the situation of the user in comparison to what would have been the case had the user receive advertising of little interest to him. Consumers may indeed prefer to receive advertising that matches their preferences and could inform them about the products they are interested in, rather than 'junk' advertising.

Haucap observes that the data extraction may be considered excessive in the presence of these two scenarios 'once we assume that '(a) either a sufficient number of consumers do actually receive disutility from 'excessive' data requirements and from having their data combined or (b) consumers are somehow being harmed without noticing it'²⁸⁹⁹. Certainly, this is behaviour that may fall under data protection or consumer protection rules, but as discussed in II.A. the problem is exacerbated in case the platform has market or bargaining power and thus the consumer may not easily switch to an option that is more respectful of his privacy.

This debate raises the question of 'whether antitrust law should hold dominant firms to stricter data protection and privacy standards than competing firms without market power'²⁹⁰⁰. Indeed, excessive data extraction will be an issue for competition law only in situations in which the platform disposes a dominant position or monopoly power or there is a collective dominant position. Smaller size platforms may thus be able to adopt practices of data extraction that could be considered as excessive. Some authors raise questions as to the legitimacy of such 'differential treatment' and the higher duties imposed on dominant undertakings. We consider that these arguments do not stand serious scrutiny. First, only dominant undertakings are also targeted by provisions against excessive pricing, other undertakings being free to decide their pricing strategies. If this is not considered a problem for excessive pricing claims, it should not also be an issue for excessive data extraction claims. Second, as previously discussed a concentrated market constitutes a less optimal, from a privacy perspective, market structure than a less concentrated market, as there is a higher likelihood that the market tips to less-privacy centred business models, in particular in view of the higher valuation of advertised-based platforms by financial markets. Thirdly, it is in fact the preeminent position of the platform in its core activity and in adjacent markets that enables it to impose to its users a business model reducing their privacy, as the users cannot easily switch or do not generally switch to alternative platforms that would offer higher levels of privacy protection. Finally, non-dominant platforms are subject to data protection laws, which impose specific duties to all undertakings (and data controllers) irrespective of market size to protect the privacy of their users. However, as explained in Chapter 5 there is added value in competition law intervention.

2899 J. Haucap, Data Protection and Antitrust: New Types of Abuse Cases? An Economist's view in light of the German Facebook Decision, CPI Antitrust Chronicle (February 2019), 3.

2900 Ibid., 4.

It is likely that excessive data extraction may constitute a form of exploitative behaviour. There has been some discussion over targeting purely exploitative behaviour through the abuse of dominant position provisions. Commentators have expressed a number of reservations on this issue with regard to claims of excessive pricing, and it is important to explore if the same objections may also apply in the event of a privacy related harm:

(i) It is often acknowledged that determining excessive pricing may be hard, in particular determining the right benchmark. Would the perfect competitive price constitute such a benchmark? But what would that mean in the context of a market characterized by network effects? Can one assume that the but-for scenario would have been the development of a duopoly, or should we use models of imperfect competition? How can it be calculated? If one allows some margin above competitive price, what is the magnitude of this margin? How to establish reasonable return on investment?

(ii) Setting clear rules for compliance in dynamic markets is even harder; How should these rules apply in dynamic markets, where there is upfront investment for the future? Should one require high *ex post* margins to incentivise *ex ante* risky investments (e.g. in R&D)? It is important to acknowledge that high margins on some activities may be required to cover fixed costs that are common across activities;

(iii) Remedies for excessive pricing can equate to price regulation (either implicitly or explicitly);

(iv) Price regulation can be distortive to competition, investment and R&D; Price regulation can inhibit entry/expansion by competitors, can distort investment incentives, can distort incentives for marketing and R&D – i.e. ‘portfolio pricing’ approach (in view of the fact that the majority of R&D projects fail), may distort pricing incentives; Proponents of this view suggest that there may need to be explicit regulation for certain areas of natural monopoly – such as utilities – but this should be done carefully by sector-specific regulators. The rest of the economy should be left alone – since the risks of careless and ill-informed intervention outweigh any potential benefits;

(v) The problem will typically solve itself, since high profits encourage entry.

(vi) Defining what constitutes an excessive price is too complicated for competition authorities or the courts, which are not the adequate institutions for this task.

In view of these difficulties, commentators have suggested a number of limiting principles to the application of abuse of dominance provisions to purely exploitative practices, that should apply only in narrow circumstances, such as that there are very high and long lasting barriers to entry (and expansion); and the firms (near) monopoly position has not been the result of past innovation or investment²⁹⁰¹.

2901 See, D.S. Evans and J.A. Padilla, ‘Excessive Prices: Using Economics to Define Administrable Legal Rules’ [2005] 1 Journal of Competition Law & Economics 97; L.H. Röller, ‘Exploitative Abuses’ in C.D. Ehlermann and M. Marquis (eds) European

However, from the above considerations, very few apply in the situation of excessive data extraction.

First, although not all degrees of data extraction may be considered problematic, to the extent that data extraction may also occur in situations of perfect competition, data extraction that contravenes to the data protection regulation, should this exist, can be presumed to be of an excessive level. From then on it is a matter of a case-by-case analysis of the specific conditions of the market in order to determine if the dominant position and the data policies adopted by the dominant platform contributed to the lower level of data protection and privacy, in comparison to the situation in the market before such dominant position emerged and the data policies altered. This case-by-case analysis of the conditions of the market and the business strategies of the firms is commonplace in competition law analysis.

Second, the risk of data extraction strategies is that once tried they may generate superior profitability for the platforms that manage to harvest most of the personal data and hence could lead to increasing returns to scale and learning-by-doing that may be highly valued by financial markets. There is therefore a risk that the mode of competition and innovation in the industry will get stuck to an equilibrium that would be suboptimal from a data protection perspective. The difficulties mentioned above regarding fixed costs are not also that relevant in this context, in view of the multi-sided markets context of the business strategies followed, the non-price harm to consumers in this case in terms of reduced privacy being on a different market than the price effect, which is in the advertising market(s).

Third, the remedies for excessive data extraction may be straightforward and a cease and desist order would be in most cases sufficient to deal with the harm. Hence, there is no need for price regulation. Of course, if the remedy involves the requirement to offer users to pay for a more compatible to privacy option, determining the 'price' of privacy might require some form of price regulation. We explore the way this can be done in the last Section.

Fourth, any remedies aiming to promote data protection and privacy for users will most likely not distort competition, innovation and R&D. On the contrary, that may enable a differentiation of the business models followed by the platforms and nudge the direction of innovation efforts to models promoting privacy.

Fifth, it is not clear if the problem may solve itself, as once a market has tipped to a sub-optimal equilibrium in terms of privacy, for instance if platforms based on the advertised-based model harvesting personal data dominate the market, we have seen that it is quite difficult for any platform to challenge this position, even if it offers a more privacy-enhancing alternative, in view of the network effects. Hence, some form of state intervention is needed. Sixth, determining if a platform has proceeded to an excessive extraction of data, including committing a violation of data protection law is certainly a

much easier task for the courts than determining if a price is 'excessive', the latter involving some sophisticated economic analysis.

One could also challenge the argument over the risks that such claims set for legal certainty, requiring the development of narrow limiting principles. Contrary to the situation of price related exploitation, courts and competition authorities can more easily set clear principles on the basis of existing rules of data protection law, or in case they do not exist on the basis of the hypothetical revealed preferences of consumers, either determined through 'willingness to pay' (WTP) surveys, or because consumers usually value less privacy if they are asked how much they are ready to pay for it, instead of how much they would like to be paid in order to lose it (Willingness to Accept, WTA), through other methods (e.g. hedonic pricing)²⁹⁰².

We will briefly explore the constitutive elements of an excessive harvesting of data case as a competition law violation in order to see how the existing case law regarding excessive prices may apply in this context. The focus will be on the EU as it is the jurisdiction that serves as a reference for other jurisdictions, including some BRICS, that also sanction excessive pricing²⁹⁰³.

2902 A. Acquisti, J. K. Leslie & G. Loewenstein, What Is Privacy Worth?, (2013) 42(2) *The Journal of Legal Studies* 249, 268 (noting that 'individuals' preferences for privacy may not be as stable or as internally consistent as the standard economic perspective assumes' and finding that there is a 'gap between privacy WTP and WTA' and arguing 'against the uncritical use of privacy valuations that have used single methods—for example, only WTP or only WTA').

2903 In Brazil, despite the reference in Law 12.529/2011, art 36, III to conducts which arbitrarily increase profits, a pure case of excessive pricing will not succeed. A possible effect in welfare is generally part of the antitrust analysis. Therefore, a case based on exploitative abuse of prices is unlikely.

In Russia, to date, there are no relevant digital competition cases dealing with excessive pricing. The only applicable case is the case against the four main telecom operators (MTS, Vimpelcom and Megafon) that were found to have breached Article 10 (1) (1) of the Federal Law on Protection of Competition (setting and maintenance of monopolistically high prices). FAS of Russia said that the revenues these companies received by increasing their roaming tariffs were higher "than the amount of costs and profit necessary for efficient execution of inter-operator roaming agreements". No other (digital) cases from Russia dealt with excessive pricing.

In India, if a dominant firm "directly or indirectly imposes unfair or discriminatory price in purchase or sale (including predatory price) of goods or services", it will amount to an abuse of dominance (section 4(2) (a) (ii)). Any possibility of excessive or unfairly low prices is covered under this provision.

Recognizing difficulties in determining whether a price is excessive, the Commission in HT Media case [In re M/s HT Media Limited & M/s Super Cassettes Industries Limited, Case No. 40/2011, available at https://www.cci.gov.in/sites/default/files/C-2011-40_0.pdf] observed that 'in the absence of the cost data it will be difficult, neigh impossible, to term the price charged by the opposite party at ... as unfair being excessive solely on the basis that it is higher than the price charged by the competitors of the opposite party'.

As a recent note by the CCI to the OECD acknowledges, "(g)iven the challenges associated with assessment of benchmark 'fair price', followed by regulatory dilemma of associated trade-offs between static and dynamic efficiency, the Commission has rarely intervened in cases exclusively involving excessive pricing as the primary allegation. Even in cases where intervention has been made, the Commission has been averse to devising any pricing remedies": Excessive Pricing in Pharmaceutical Markets – Note by India, OECD, 2018; DAF/COMP/WD(2018)113.

In China, excessive pricing is prohibited under Article 17(1) of the Anti-Monopoly Law. The legal test is similar to that put forward in United Brands. The conduct is assessed according the following test: (i) whether the dominant business operator sells products at high prices or buys products at low prices; (ii) whether the price is unfair. In assessing the

The legal test for excessive pricing in the EU results from the seminal *United Brands* case, where the Court of Justice (CJEU) held that a price may be found excessive if it has no reasonable relation to the economic value of the product supplied.²⁹⁰⁴ According to the Court, this excess could, *inter alia*, be determined objectively if it were possible for it to be calculated by making a comparison between the selling price of the product in question and its cost of production, which would disclose the amount of the profit margin²⁹⁰⁵. A two- step analysis is carried out: it has to be determined ‘whether the difference between the costs actually incurred and the price actually charged is excessive, and, if the answer to this question is in the affirmative, whether a price has been imposed which is either unfair in itself or when compared to competing products.’²⁹⁰⁶ These two conditions (steps) are cumulative. Evidence of an excessive profit margin is not sufficient in itself to prove an abuse. The EU competition authorities employ a cost– price approach in order to determine the excessive character of a profit margin. With regard to the measurement of the ‘excessive’ nature of the prices, a possible option is to determine an adequate cost measure to measure profit (adopt a cost-plus approach), compare that to the price and then to assess the excessiveness of the profit margin, the last operation involving the definition of some benchmarks. Some profit margin would also be entirely justified in dynamic industries or industries with network effects.

As to the adequate benchmark prices that would define the ‘unfair’ character of the prices charged, a comparison with the prices charged by competitors might be a possible option (although one should be cautious, as price differences may indicate quality differences). In *United Brands* the Court noted that ‘other ways may be devised— and eco-

unfairness, the following factors shall be taken into consideration: (i) comparison with other same or similar products or services; (ii) comparison with other geographic markets; (iii) comparison with historical prices: Article 14 of the Interim Provisions on Prohibiting Abuse of Dominant Market Positions.

In South Africa, the regime for excessive pricing adapted the test of EU Competition Law in *United Brands*. However following the decision of the Competition Appeal Court in *Sasol Chemical Industries Ltd v The Competition Commission* 2015(5)SA471(CAC) where the Commission failed to prove its case based upon the *United Brands* type test the law was amended in 2018. While it remains a case of abuse of dominance for a dominant firm to charge an excessive price for a good or service, the amendment has changed the test as is shown by way of the following change to s8 of the Act: If there is a prima facie case of abuse of dominance because the dominant firm charged an excessive price, the dominant firm must show that the price was reasonable.

‘Any person determining whether a price is an excessive price must determine if that price is higher than a competitive price and whether such difference is unreasonable, determined by taking into account all relevant factors, which may include—(a)the respondent’s price-cost margin, internal rate of return, return on capital invested or profit history;(b)the respondent’s prices for the goods or services—(i) in markets in which there are competing products;(ii) to customers in other geographic markets;(iii) for similar products in other markets; and(iv) historically;(c)relevant comparator firm’s prices and level of profits for the goods or services in a competitive market for those goods or services;(d)the length of time the prices have been charged at that level;(e)the structural characteristics of the relevant market, including the extent of the respondent’s market share, the degree of contestability of the market, barriers to entry and past or current advantage that is not due to the respondent’s own commercial efficiency or investment, such as direct or indirect state support for a firm or firms in the market’

2904 Case C-27/76 *United Brands v Commission* [1978] ECR 207.

2905 *Ibid.*, 251.

2906 *Ibid.*, 252.

economic theorists have not failed to think up several— of selecting the rules for determining whether the price of a product is unfair.²⁹⁰⁷ Other options include the comparison with the price of the product over different geographic markets.²⁹⁰⁸ Hence, according to EU competition law, a price can be unlawfully excessive where ‘it ha[d] no reasonable relation to the economic value of the product supplied’ and assessed the prices using the following test: (1) whether the difference between the costs and the price was excessive (‘excessiveness limb’); and (2) whether the price was either unfair (a) in itself or (b) when compared to the price of competing products (‘unfairness limb’)²⁹⁰⁹. From an economic perspective, excessive extraction should be of concern only if it results from some form of market failure, such as lack of competition or other barriers that make it difficult for consumers to switch to competitors that would extract less data. However, the concept of fairness used provides some leeway to the enforcer to determine broader standards.

Applying this test to the issue of excessive data extraction, Robertson argues that ‘one may in a first step need to look at the amount of personalized data gathered through third-party tracking (the price paid by the user), and what the user receives in return (the product’s cost to the service provider and its economic value)’, thus assessing ‘whether there is a reasonable relation between the amount of data collection that the tracker can or will carry out and the economic value of the digital service the users receive’²⁹¹⁰.

It is important in this context to determine, as a first step, the ‘economic value’ of the product, that is, the objective value that consumers would apply to the specific product in the counterfactual of a ‘normal and sufficiently effective’ competitive market (the benchmark price) and then determine if the difference between the price and cost in the factual compared to the counterfactual is excessive, the evaluation of costs most often deriving from a cost plus formula. This will involve the determination of which costs are relevant for pricing. Barriers to entry, such as network effects, may also be considered in the overall assessment of the likelihood that the levels of data extraction may be, or not, at a competitive level, thus determining the nature of the counterfactual.

Economic value cannot be determined in a similar way as in the context of the tangible economy, that is, simply on the basis of the various components of production costs (fixed, variable and sunk) plus a reasonable return on the costs the undertaking incurred with respect of the relevant product.²⁹¹¹ It is also important to compare with

2907 Ibid., para 253.

2908 Ibid., para 239; Case C-395/87 *Ministère Public v Tournier* [1989] ECR 2521; Case C-110/88 *Lucazeau v SACEM* [1989] ECR 2811, the last two cases on the level of royalties charged by the French collecting society SACEM for playing recorded music in discotheques (acknowledging that important price differentials between Member States could indicate an abuse, unless the undertaking justifies the difference by reference to objective dissimilarities between the situation in the Member State concerned and the situation prevailing in all the other Member States).

2909 See also, *Flynn Pharma Limited*, [2018] CAT 11

2910 V.H.S.E. Robertson, *Excessive Data Collection: Privacy Considerations and Abuse of Dominance in the Era of Big Data* (June 24, 2019), available at SSRN: <https://ssrn.com/abstract=3408971>,

2911 Other ways to determine this value relate to a comparison with other, more competitive markets, where no such conduct took place.

the level of extraction of data practised by platforms in more competitive markets, or the same platform over time, or across different customer segments, on a 'consistent basis' and employing 'objective, appropriate and verifiable criteria.'²⁹¹² In any case an overall assessment should each time be required.

With regard to the cost-plus approach, as the digital service provided relates to the entertainment/content or convenience to the user (e.g. social media, the search engine), the cost should be related to the production of such services or convenience. However, as we have examined in Chapter 5 a lot of the 'free' content available on some digital platforms is mainly produced and uploaded by the users themselves. The users also contribute to the attractiveness of the search engine by providing their data and thus enabling a better training for the platform's algorithms, thus enhancing its analytic skills through learning-by-doing. Hence, the first step of the analysis should involve some form of evaluation of the operational costs of the platforms linked to the provision of the digital service, and eventually any costs involved in the creation of content for some platforms, such as production costs (e.g. Netflix), payment to content contributors (e.g. You Tube) etc. Platforms may also argue that the data harvesting enables them to offer users targeted advertising, which should be considered as welfare-enhancing and thus forming part of the 'digital service' offered by the platform, as it constitutes an improvement in terms of time saved and search costs in comparison to the situation of across-the board advertising.²⁹¹³ However, the welfare effects of targeted advertising are ambiguous and largely depend on the specific types of personal information made available through the targeting process.²⁹¹⁴ The allocation of the benefits between the advertisers, the intermediary and consumers also varies and requires a case-by-case assessment. If targeted advertising constitutes adds a welfare gain to the user, then any cost involved in the provision of such digital service (for instance marketing costs) should form part of the assessment of the value of the economic value. In any case the simple fact that an undertaking earns above normal returns by harvesting more data does not prove the excessiveness of the data extraction.

As a second step in the analysis, one may determine if the price paid by the consumer has 'no reasonable relationship' with the value of the product. This looks to non-cost related factors, eventually also related to the demand side, such as network effects. As the (aggregate) demand curve indicates the maximum amount that potential customers would be willing to pay for each unit of a good, one may derive the customers' marginal economic valuations for each unit. One of the issues that may come up in the context of excessive data extraction cases is that the 'price' paid by the users takes the form either of data, which they agree to divulge to the platform and to third party trackers sometimes without knowing the real extent, or their attention/time. Users may also pay

2912 Case C-177/16, *Autortiesību un komunikēšanās konsultāciju aģentūra / Latvijas Autoru apvienība v Konkurences padome*, ECLI:EU:C:2017:689, paras 41 & 51.

2913 C. Tucker, *The Economics of Advertising and Privacy*, (2012) 30(3) *International Journal of Industrial Organization* 326.

2914 For an analysis see, V. Marotta, K. Zhang & A. Acquisti, *The Welfare and Allocative Impact of Targeted Advertising*, Thirty Sixth International Conference on Information Systems, Fort Worth 2015, available at <https://pdfs.semanticscholar.org/62c0/6ffa2f8da2a337a555a61dc0c1803eb27448.pdf>.

a 'price' to get access to the service. There are various models of monetisation of digital platforms, such as providing access for free while milking the 'money market', through subscriptions, offering a free and paid (premium) version (freemium), or an add-supported freemium.

Then comes the second step, which is to determine the unfair character of the amount of data harvested, either 'in itself or when compared to competing products.' As the UK CAT held in *Pfizer & Flynn Pharma*, excessiveness should not be assessed by reference to the theoretical concept of 'idealized or perfect competition' but the 'real world (where normal, effective competition is the most that should be expected).'²⁹¹⁵ Unfairness should also rely on a comparison with the level of data extraction in other comparable markets, and assess of the differential between economic value and 'price' is 'sufficiently significant and persistent to be excessive', as well as the evolution of this extraction of data over time, of course giving appropriate consideration to any objective justification advanced by the dominant undertaking.²⁹¹⁶

11.3.2.2. Personalised pricing

The practice of *behavioural pricing* or *personalised price discrimination*, which comes tantamount to first degree price discrimination (or person-specific pricing), is now possible in view of Big Data and algorithmic pricing as practiced in online commerce, as sellers charge different prices depending upon a buyers' search history, or "digital shadow"²⁹¹⁷. Firms may actively manipulate the choice of consumers.²⁹¹⁸ Recent calls for intervention against "behavioural pricing" (or personalised price discrimination),²⁹¹⁹ which may be

2915 *Flynn Pharma Ltd and Flynn Pharma (Holdings) Ltd v Competition and Markets Authority*, [2018] CAT 11.

2916 *Ibid.*, para 443.

2917 M. Gal, 'Algorithmic-facilitated Coordination', DAF/COMP/WD(2017) 26 (noting that " (a)s more data is gathered about each consumer's preferences, a personalized 'digital profile' can be created by algorithms, which calculates and updates each consumer's elasticity of demand in real-time. This digital shadow can then be used by suppliers to increase their profits even further, if they can price-differentiate between the offers they make to different consumers").

2918 See, J D. Hanson & D A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, (1999) 74 *New York University Law Review* 630. For the first study in EU competition law raising this problem, see N. Economides & I Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft cases*, (2009) 76 *Antitrust Law Journal* 483, 542.

2919 See, *Autorité de la Concurrence & Bundeskartellamt, Competition Law and Big Data* (May 10th, 2016), 21-22, noting that although the application of EU competition law to these practices may be debated, in Germany, the Federal Supreme Court found that the national provision against the abuse of a dominant position can include a consumer protection dimension as regards price discrimination, see German Federal Supreme Court (BGH), „Entega II“, KZR 5/10, judgment of 07.12.2010. For a discussion of "personalised pricing" see, P Coen & N Timan, 'The Economics of Online Personalised Pricing' (Office of Fair Trading 2013); Oxera, 'Behavioural Economics and Its Impact on Competition Policy' (Oxera 2013) ; T.J. Richards et al, *Personalized Pricing and Price Fairness*, (2015), available at https://courses.cit.cornell.edu/jl2545/papers/personalized_Pricing_IJIO.pdf ; A Ezrachi & M Stucke, 'The Rise of Behavioural Discrimination' [2016] 37 *ECLR* 484; A Ezrachi & M Stucke, *Virtual Competition* (Harvard University Press 2016), Chapter 11 (distinguishing "near perfect" discrimination, involving the categorisation of consumers through the harvesting of personal information collected with the help of Big Data and self-learning algorithms, from "behavioural" discrimination, which is led with the aim to trigger consumer biases and increase consumption); M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017).

considered as a form of algorithmic discrimination, illustrate the broader societal concerns (if not only economic) that are raised with regard to the perceived manipulation of consumers by companies, something as old as advertising exists.²⁹²⁰ In the era of “machine learning” and artificial intelligence-assisted pricing the risks of “digital” consumer manipulation may admittedly increase at an industrial scale.²⁹²¹ Digital markets exacerbate the above risks, in view of the possibilities they offer of “a vast psychological audit, discovering and representing the desires of society”²⁹²² and of each individual separately, offering sophisticated evaluation methods that are closely linked to the direct observation of consumer preferences, but also more broadly of a whole range of preferences expressed in social, and private life, through the means of sociometric analysis²⁹²³. Big data enable us to observe, allegedly more accurately, the inner mental states of people and potentially influence the way these form their core preferences. Such manipulative potential and of course the possibility that this may occur at a larger scale, in view of the possibilities offered by algorithms, data analysis and artificial intelligence, is clearly motivating public authorities to action.

This may later feed in the companies’ commercial strategies that may, for instance, develop personalised pricing strategies, which may be considered a form of price discrimination. Price discrimination may be of different types:

- *First degree price discrimination*: it enables the producer to set individualized prices for each customer, relying on its knowledge of *individual* preferences
- *Second degree price discrimination*: The producer doesn’t know the individual preferences and proposes a menu of options to consumers, letting the consumers choose their preferred one.
- *Third degree price discrimination*: The producer doesn’t know the individual preferences, but charges different prices to groups of consumers with different characteristics.

There is price discrimination when two transactions of the same good occur at different prices despite having the same cost. Successful, from the company’s perspective price discrimination (that is one that cannot be defeated by consumers switching to other producers) requires some conditions, including (i) market power, (ii) the ability to distinguish customers, (iii) the ability to prevent resale. Personalised pricing improves the ability to distinguish customers and may lead to first degree price discrimination, as well as third degree price discrimination, when it is possible for the firms to apply group pricing, discriminating between groups of consumers. Subjecting to price discrimination final users may enable the producer to capture the entire consumer surplus, generate

2920 See, I Lianos, ‘Brands, Product Differentiation and EU Competition Law’ in D. Desai, I. Lianos & S. Weber Waller (eds.), *Brands, Competition Law and IP* (Cambridge University Press, 2015), (discussing the ‘persuasive view’ of advertising in economic literature).

2921 R Calo, ‘Digital Market Manipulation’, (2014) 82 *George Washington Law Review* 995.

2922 W. Davies, *The Happiness Industry: How the Government & Big Business Sold Us Wellbeing* (Verso, 2015).

2923 *Ibid.*

unequal treatment of various individual consumers or groups of consumers, and affect competition with other producers (not necessarily of the same relevant market), in the sense that by enabling the producer to charge a specific consumer as high as his willingness to pay, reduces the available income of the consumer to make other purchases. Different producers compete for the limited resources/budget of a consumer or a group of consumers. As a result consumer welfare suffers, in comparison to the counterfactual, which is here perfect competition and uniform pricing that is marginal cost pricing (might in digital markets may be close to zero).

Personalised pricing or “price targeting” has been observed in various markets.²⁹²⁴ To the extent that this manipulation may result in welfare losses for individuals, or group of consumers, in the sense that the specific individual, or the specific group of consumers, could find its/their situation worse off, in comparison to a counterfactual where no such digital manipulation would have taken place, it can be argued that these deviations from the counterfactual situation need to be corrected through State intervention, eventually by competition law enforcement. But this is a matter for debate. One may argue that personalised pricing should not be considered as a form of ‘manipulation’, but as a technological opportunity to charge each consumer as much as her/his willingness to pay is. This may, for instance, enable some consumers that would not have been able to purchase the specific product, if a uniform price would have been implemented and would have been higher than their willingness, to afford the product. ‘Personalised pricing’ may therefore have ambiguous welfare effects, depending on the market structure and the trade-off between the market ‘appropriation’ effect to consumers with high willingness to pay versus the ‘market expansion’ effect to consumers with a low willingness to pay.²⁹²⁵ In *Asnef-Equifax*, when examining the possible efficiency gains brought by a restrictive to competition information exchange, the CJEU held that when performing the trade-off under Article 101(3) TFEU ‘[...] it is the beneficial nature of the effect on *all* consumers in the relevant markets that must be taken into consideration, not the effect on *each member* of that category of consumers’²⁹²⁶. Hence, it seems that this assessment should be done at a general level, the representative consumer of the specific relevant market.

One may also argue that EU competition law’s focus on distributive justice, in particular its emphasis on the position of ‘consumers’, who should not be worse off following the specific conduct, may justify competition law intervention if the additional benefits from personalised pricing are not passed on to them, either in the form of lower prices, or in the form of better quality and/or innovative products. Competition law intervention may

2924 See the analysis and examples provided in M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 40-41 and the empirical studies they refer to.

2925 For a discussion, see OFT1488, *The economics of online personalised pricing* (May 2013), available at http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.ofg.gov.uk/shared_ofg/research/of1488.pdf ; M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 43-45.

2926 Case C-238/05, *Asnef-Equifax, Servicios de Información sobre Solvencia y Crédito, SL v Asociación de Usuarios de Servicios Bancarios* (Ausbanc), ECLI:EU:C:2006:734, para. 70 (emphasis added).

also be motivated by fairness considerations (value ethics), in particular if personalised pricing is not transparent and thus consumers are not informed, or the need to limit an extensive use by the firms practising algorithmic discrimination of consumers' sensitive personal data, in view of the purpose limitation and data minimisation requirements in the Data Protection regulation.²⁹²⁷ These practices may also raise more conventional competition law concerns, as they discourage consumer search by making it harder or more expensive to return to buy after a search for alternatives, with the effect that the matching of products to consumers is sub-optimal and that consumers, on aggregate, may finish paying higher prices.²⁹²⁸

There are different ways to deal with personalised pricing, from a competition law perspective. In the EU, it is possible that such practices may be qualified as a form of price discrimination under Article 102(c).²⁹²⁹ Article 101(1)(d) TFEU also prohibits agreements that "apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage." Article 102(c) utilizes almost identical language to inhibit dominant undertakings from engaging in price discrimination. EU competition authorities have focused price discrimination enforcement on dominant undertakings. Among the conditions for the application of this provision, there is the requirement that the "other trading partners" are placed at a "competitive disadvantage", which may suggest that this provision may not apply to discrimination on price or other parameters of competition against final consumers. However, this language has not impeded the Commission to apply Article 102(c) to final consumers in *Deutsche Post*, in particular consumers of postal services, which due to the behaviour of Deutsche Post were affected negatively by having to pay prices for these services which were "higher than those charged to other senders and by having their mailings delayed significantly" The Commission noted that

"Article [102 TFEU] may be applied even in the absence of a direct effect on competition between undertakings on any given market. This provision may be also be applied in situations where a dominant undertakings behaviour causes damage directly to consumers."²⁹³⁰

Also note that the case law does not require evidence of a competitive disadvantage, which in some cases has been presumed.

2927 Art. 5(1) of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation – GDPR), [2016] L 119/1. See also Art. 9(1) GDPR and Section 2 of the Data Protection Act 1998 which require the data controller when processing personal data to obtain a specific and explicit consent to process these categories of data.

2928 M Armstrong & J Zhou, 'Search Deterrence' (2016) 83 Review of Economic Studies 26

2929 See, Autorité de la Concurrence & Bundeskartellamt, Competition Law and Big Data (May 10th, 2016), 21-22, noting that although the application of EU competition law to these practices may be debated, in Germany, the Federal Supreme Court found that the national provision against the abuse of a dominant position can include a consumer protection dimension as regards price discrimination, see German Federal Supreme Court (BGH), „Entega II“, KZR 5/10, judgment of 07.12.2010.

2930 Commission Decision COMP/C.1/36.915, Deutsche Post AG, [2001] OJ L331/40 (not appealed), para 133.

Alternatively, personalised pricing may be attacked through Article 102(a) if it can be qualified as ‘directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions,’ for instance because it has led to the imposition of a higher price (or lower quality) than what would have been the case but for the specific digital manipulation and enables the producer to capture the entire consumer surplus. Of course, should this route be followed, it would be important to design a test with more specific conditions than just the fact that there is no reasonable relation between the price charged to the consumer and the “economic value” of the product supplied, as personalised pricing aims precisely to set the price at the exact level the specific consumer thinks is the ‘economic value’ of the product (subjective perception of value that corresponds to the subjective willingness to pay of this specific consumer), which from an economic efficiency perspective should not be problematic. However, one may argue that the principle of ‘open market economy’ would require that economic value should be set in the context of a competitive process taking place on a market, where various actors, consumers and suppliers interact, in view of the fact that ‘competition is, by its very essence, determined by price.’²⁹³¹ Hence, charging a consumer a personalised price that would correspond to her/his willingness to pay, without him being aware of this and without enabling the specific consumer to benefit from the competitive process taking place at the ‘open market’ and the source of information this may provide so as to enable informed comparison with regard to the situation of other consumers may contravene to ‘the principle of an open market economy with free competition.’²⁹³² This is particularly important as one may argue that consumers value the competitive process as such, and not just the fact that the price of a product is within the range of their willingness to pay, which is also something that cannot be set in advance, but essentially cultivated in the context of a market involving continuous interactions between buyers and sellers. That said, it is important to explore if competition law is the best legal instrument to deal with welfare-reducing targeted pricing, or if other alternatives, such as consumer protection law, data protection and privacy rules, anti-discrimination law, unfair commercial practices law, free movement law, regulation, may prove to be more appropriate, following a detailed comparative institutional analysis.²⁹³³

2931 Opinion of Advocate General Szpunar in Case C-148/15 *Deutsche Parkinson Vereinigung eV v Zentrale zur Bekämpfung unlauteren Wettbewerbs eV* EU:C:2016:394, para.18.

2932 This principle is mentioned in Articles 119, 120 and 127 TFEU.

2933 See, M Bourreau et al., *Big Data and Competition Policy: Market Power, personalised pricing and advertising*, CERRE Project Report (February 2017), 45-47, noting restrictions on personalised pricing from data protection rules (the need to have the explicit consent of the data subject involved), consumer protection rules (disclosure to consumers about the prices and how they are calculated), unfair commercial practices (prohibiting in certain circumstances consumer profiling and considering this as a misleading commercial practice), free movement law (the Services’ directive prohibitions to discrimination based on the service recipient’s nationality or residence), as well as specific regulations on geo-blocking (see Proposal for a Regulation of the European Parliament and of the Council on addressing geo-blocking and other forms of discrimination based on customers’ nationality, place of residence or place of establishment within the internal market and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC, COM(2016) 289 final), or the application of competition law provisions against geo-blocking.

11.3.2.3. Unfair commercial practices and trading conditions

The exploitation of trading partners may not only take the form of higher prices. In some competition law regimes, the imposition of ‘unfair trading conditions’ (UTC) or ‘unfair commercial practices’ (UCP) may also constitute an abuse of a dominant position,²⁹³⁴ and this even if other areas of law, such as unfair competition or contract law may also apply in this occasion. The concepts of UTC and UCP are quite broad, and fuzzy, thus offering an important policy discretion to competition authorities and a high margin of interpretation to the courts to frame the scope of this legal category in the way they find appropriate. In some well-established case law, the Court of Justice of the EU considered that contractual provisions that have an ‘inequitable nature’ may constitute an abuse, ‘bearing in mind both the intrinsic individual effect of those clauses and their effect when combined.’²⁹³⁵ Similarly, the CJEU found abusive contractual clauses ‘making access to [a distribution] network conditional upon the firms accepting unfair terms in the distribution agreement,’ these constituting UTC.²⁹³⁶ These practices need not derive directly from the contract but may also consist in measures unilaterally adopted by the dominant undertaking, not always in the context of a pre-existing contractual relation. National competition authorities have been quite active on this front, even for non-dominant undertakings.²⁹³⁷ Although this case law on UTC and UPC focuses on practices affecting other undertakings (B2B), there is nothing that would impede these from also applying with regard to UCP and UTC affecting final consumers (B2C), as there is not distinction between situations in which the dominant undertaking is in competition, or not, with its trading partner downstream or upstream. Hence, the provisions prohibiting an abuse of a dominant position could also cover conduct imposing unfair conditions to final consumers that would lead to a reduction of the quality of the services provided and other exploitative effects, such as the extraction of personal data without the user’s consent.

This raises, however, the question of what may constitute UCP or UTC under EU competition law, and how could this type of abusive conduct include non-price and privacy related theories of harm. The case law does not provide clear limiting principles. Some recent soft law and preparatory documents relating to the adoption of the Directive

2934 See, for instance, Article 102(a) providing as an example of abuse ‘directly or indirectly imposing [...] unfair trading conditions.’

2935 Case C-127/73 *Belgische Radio en Televisie v SN SABAM and NV Fonior* [1974] ECR 313, paras 12-13.

2936 Case T-139/98 *Amministrazione Autonoma dei Monopoli di Stato (AAMS) v Commission* [2001] ECR II-3413, para. 76. See also Case T-83/91 *Tetra Pak International SA v Commission* [1994] ECR II-755, para 140 upheld in Case C-333/94 P *Tetra Pak International SA v Commission* [1996] ECR I-5951. (rendering conditional the sale of the product to the use of the dominant undertaking’s repair and maintenance services, such obligation being considered as going beyond protecting the dominant undertaking’s ‘commercial interest’ and thus be disproportional); Case T-203/01 *Manufacture Francaise des Pneumatiques Michelin v EC Commission* [2003] ECR II-4071, para 141 (indicating how rebate conditions that are indeterminate and non-transparent may also constitute UTC).

2937 A. Renda et al., Study on the Legal Framework Covering Business-to-Business Unfair Trading Practices in the Retail Supply Chain – Final Report (February 26, 2014), available at <https://publications.europa.eu/en/publication-detail/-/publication/c82dc8c6-ec15-11e5-8a81-01aa75ed71a1/language-en>.

concerning unfair business-to-consumer commercial practices,²⁹³⁸ the Directive on unfair trading practices in business-to-business relationships in the food supply chain,²⁹³⁹ or the recent EU proposal for a regulation on promoting fairness and transparency for business users of online intermediation services,²⁹⁴⁰ may provide a source of inspiration for this case law to develop further. One needs of course to distinguish between the interpretation of Article 102 TFEU of the Treaty and the emergence of some EU unfair competition law: the fact that a practice constitutes, or not, an 'unfair' commercial practice under the EU Unfair Trading Practices in the food sector or the EU Regulation on fairness in the context of intermediation platforms, should not have an immediate bearing on the qualification of such practice as an UCP or UTC prohibited by Article 102(a) TFEU. However, it does constitute a factual element that needs to be taken into account when interpreting the meaning that the prohibition of 102(a) on unfair trading conditions. Some common elements seem to define the concept of UPC and UTC in this context. The Commission has 'broadly' defined UTC as 'practices that grossly deviate from good commercial conduct, are contrary to good faith and fair dealing and are unilaterally imposed by one trading partner on another.'²⁹⁴¹ In defining the problem requiring intervention, the Commission also insisted on the 'transfer of excessive risk and costs to weaker parties' and a 'diminished part of added value' for the 'weaker' parties as some of the implications of UTC in the presence of an unbalance of bargaining power.²⁹⁴² The overall concept thus refers to practices of value capture that lead to an 'unfair' division of surplus between the actors involved. However, the way the concepts of UPC or UTC have so far been conceptualized in these texts is intrinsically linked to the B2B dimension of vertical competition these rules aim to regulate, as it assumes that the 'weaker' actor is an undertaking taking risks, rather than a final consumer. Hence, such conceptualisations may provide useful insights but certainly do not exhaust the conceptual potential of the UTC and UPC.

2938 Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market

2939 European Commission, 'Green Paper on Unfair Trading Practices in the Business-to-Business Food and Non-food Supply Chain in Europe' COM(2013) 37 final ; European Commission, 'Communication, Tackling unfair trading practices in the business-to-business food supply chain' COM(2014) 472 final ; European Commission, 'Staff Working Document, Impact Assessment, Initiative to improve the food supply chain (unfair trading practices), Accompanying the document, Proposal for a Directive on unfair trading practices in business-to-business relationships in the food supply chain' SWD(2018) 92 final; Directive (EU) 2019/633 on unfair trading practices in business-to-business relationships in the agricultural and food supply chain, [2019] OJ L111/59.

2940 European Commission, 'Staff Working Document, Impact Assessment, Annexes, Accompanying the document, Proposal for a Regulation on promoting fairness and transparency for business users of online intermediation services' (2018) SWD(2018) 138 final; Proposal for a Regulation of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services, COM(2018) 238 final.

2941 European Commission, 'Communication, Tackling unfair trading practices in the business-to-business food supply chain' COM(2014) 472 final, 2.

2942 European Commission, 'Staff Working Document, Impact Assessment, Initiative to improve the food supply chain (unfair trading practices), Accompanying the document, Proposal for a Directive on unfair trading practices in business-to-business relationships in the food supply chain' SWD(2018) 92 final, 11.

A recent case brought by the German competition authority against Facebook (*Bundeskartellamt, BKA*) raises interesting issues as to the possible extension of Article 102 TFEU to cover abuses resulting from the exploitation of consumers by digital platforms when harvesting consumer (personal) data.²⁹⁴³ Facebook collected the data of its users by merging the various sources of personal data generated by the use of Facebook-owned services, such as WhatsApp or Instagram, or by the use of third party websites and apps, which ‘embedded’ Facebook products through the ‘like’ button and the use of Facebook analytics. The BKA differentiated between user data that were generated through the use of Facebook, and user data obtained from third party sources, either controlled by the Facebook corporate group, such as Whatsapp, Oculus, Masquerade, or through the use of Facebook programming interfaces in websites or mobile apps in third party providers websites (via the Facebook developer platform and Facebook Business Tools), these being data not generated by the use of Facebook’s social network and for which Facebook has not received the user’s consent.

The BKA raised concerns with regard to the possible existence of an abuse of a dominant position as Facebook made the use of its service conditional upon the user granting the company extensive permission to use his or her personal data, even those generated off-Facebook use, in particular through the possibility of Facebook to gather user-related and device-related data gathered and saved during either the use of the Facebook-owned third parties or through the Facebook Business Tools in third-party websites. Users were, therefore, no longer able to control how their personal data was used. The decision focused on the infringement of German competition law, in particular Section 19(1) GWB which prohibits unfair conduct by a dominant undertaking vis-à-vis other undertakings. The BKA noted that Facebook’s users were oblivious as to which data and from which sources were being merged to develop a detailed profile of their identities and their online activities.

In determining the existence of abuse, the BKA delved into the analysis of Facebook’s terms of service and data policy. It examined whether Facebook’s data processing terms were admissible in view of the principles of the harmonised European data protection rules (EU General Data Protection Regulation). In doing so BKA indicated that a violation of EU data protection law could give rise to an abuse of a dominant position. This approach is consistent with that followed by the other German competition authority, the Monopolkommission, in proceedings pending before it. According to the Monopolkommission, an infringement of statutory provisions other than those relating to competition becomes a competition law problem if the infringement is either the result of a dominant position or it confers a competitive advantage which allows the dominant undertaking to distort competition.²⁹⁴⁴ Considering that Facebook’s merging of the data constituted a violation of the users’ constitutionally protected right to informational self-

2943 Bundeskartellamt, Facebook decision (2019), https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Entscheidungen/Missbrauchsaufsicht/2019/B6-22-16.pdf?__blob=publicationFile&v=5.

2944 Monopolkommission, ‘Sondergutachten 68: Wettbewerbspolitik: Herausforderung digitale Märkte’ (June 2015) Tz. 517. <<https://www.monopolkommission.de/de/gutachten/sondergutachten/sondergutachten-68.html>>.

determination, the BKA decided that the specific provision of German competition law prohibiting conduct of dominant undertakings (§ 19 GWB) could apply.

Facebook challenged these conclusions, arguing that there was no causal link between the alleged abusive conduct by Facebook and a dominant position on the market, as a number of other non-dominant companies were employing the same practices²⁹⁴⁵. The BKA rejected this argument noting that these terms and conditions and data policy infringed Section 19 GWB, 'because, as a manifestation of market power, these terms violate the principles of the GDPR'²⁹⁴⁶. It seems therefore to establish a direct link between an infringement of competition law and an infringement of the principles of data protection. The BKA referred to past case law of the German Federal Court of Justice which stipulated that 'principles from provisions of the legal system that regulate the appropriateness of conditions agreed upon in unbalanced negotiations can be used as concepts for appropriateness in the assessment of abusive practices under Section 19(1) GWB.'²⁹⁴⁷ The BKA inferred from this case law the general principle that 'an abusive practice can also be found based on the general clause of Section 19(1) GWB prohibiting an abuse of a dominant position by one or several undertakings, e.g. where general business terms are used 'that are inadmissible under the legal principles of Sections 307 and subsequent provisions of the German Civil Code (BGB),'²⁹⁴⁸ and in particular where these practices also represent a manifestation of market power or superior market power.'²⁹⁴⁹ This allows for a quite broad interpretation of the scope of abusive business terms (and potentially of their EU law equivalents UTP or UTC), in particular as the BKA also insisted that determining whether the business terms are abusive necessitates 'an extensive balancing of interests... which should also take into account constitutionally protected rights.'²⁹⁵⁰ Hence, Section 19 GWB 'should be applied in cases where one contractual party is so powerful that it would be practically able to dictate contractual terms, thus eliminating the other party's contractual autonomy.'²⁹⁵¹

In interpreting the prohibition principle in Section 19(1) the BKA was inspired by the content of some of the examples of abusive conduct mentioned in Section 19(2) GWB, and in particular 19(2)1 and 19(2)2. One may determine the abusive nature of the trading conditions and commercial practices from a comparison of business terms 'which differ from those which would very likely arise if effective competition existed', in particular by taking into account the conduct of undertakings in comparable markets where effec-

2945 Ibid., para.156.

2946 Ibid., para 523.

2947 Ibid., para. 526.

2948 According to Section 307 BGB, '(1) Provisions in standard business terms are ineffective if, contrary to the requirement of good faith, they unreasonably disadvantage the other party to the contract with the user. An unreasonable disadvantage may also arise from the provision not being clear and comprehensible. (2) An unreasonable disadvantage is, in case of doubt, to be assumed to exist if a provision 1. is not compatible with essential principles of the statutory provision from which it deviates, or 2. limits essential rights or duties inherent in the nature of the contract to such an extent that attainment of the purpose of the contract is jeopardised.'

2949 Ibid., para. 527.

2950 Ibid.

2951 Ibid.

tive competition exists, according to Section 19(2)2. However, this is not the only way to determine the abusive and unfair nature of business terms and trading conditions, the BKA referring to the broader ‘appropriateness principle’ which ‘is based on constitutional values, the principles of the legislation on unfair contract terms and other civil law general clauses.’²⁹⁵² The aim is to preserve the ‘constitutionally protected right to self-determination in business affairs (commercial freedom) because the other part is able to *unilaterally* determine the terms of the contract.’²⁹⁵³ This unilateralism in the determination of the conditions of the contract breaks with the usual assumption in contract law about the existence of a mutually beneficial agreement based on consent and a meeting of minds. It hints to the fact that the transaction in question may be better described by the concept of ‘uncontract’ that we have commented upon in Chapter 2.²⁹⁵⁴

This legal construction enables the BKA to integrate in the context of the enforcement Section 19 GWB any restriction to the duty of ‘appropriateness’ included, more broadly, in the ‘constitutional principles’ involved in the protection of the right to informational self-determination and the fundamental right to data protection’ and the principles of relevant legal provisions, such as the rules concerning the appropriateness of data use, included in the data protection legislation (GDPR).²⁹⁵⁵ This quite broad construction of abusive business terms by the BKA seems limited by the requirement that ‘a sufficient degree of market power is involved’²⁹⁵⁶ and by the fact that data protection law follows similar goals to the prohibition of abusive business terms in competition law, in particular in its role as a ‘special economic law’ which aims to achieve ‘a balancing of interests between data processors and the consumers’ and ‘counter power asymmetries between organisations and individuals’²⁹⁵⁷. The BKA also takes a broad view of the concept of abusive business terms as it includes data processing terms and data policies, considered as part of the terms of service, in view of the regulatory character they have from the perspective of users.²⁹⁵⁸ Hence the BKA arrives to the conclusion that ‘abusive business terms pursuant to Section 19(1) GWB could also be examined... with respect to a violation of Section 307 BGB which in turn refers to the mandatory principles of the GDPR.’ This raises the question of the relationship between competition law and data protection law, which was examined in Chapter 4.²⁹⁵⁹

The BKA seems to proceed to a reasoning in two steps. First, it acknowledges that Facebook’s terms and conditions and data policies constitute a violation of GDPR data protection values.²⁹⁶⁰ It proceeds to a very detailed analysis of the GDPR framework and the possibilities of justification that Facebook could have put forward as part of the data

2952 Ibid., para. 528.

2953 Ibid.

2954 INCLUDE HERE cross-reference.

2955 Ibid., para. 529.

2956 Ibid., para. 528.

2957 Ibid., para. 530.

2958 Ibid., para. 534.

2959 INCLUDE CROSS-REFERENCE HERE.

2960 Ibid., paras 573 et seq.

protection law assessment. The BKA takes issue with Facebook's data processing, in particular profiling, in particular the fact that information collected in Facebook-owned separate websites are used for profiling purposes on Facebook, and rejects the argument put forward by Facebook which claimed that the fact that these companies form part of its corporate group would have enabled it to use this data without infringing the GDPR. The BKA delves into the analysis of the concept of 'group of undertakings' in Article 4(9) of the GDPR and concludes that contrary to Facebook's view, no group privilege may be derived. Interestingly, in interpreting the GDPR the BKA notes that 'intra-group transactions are not generally exempt from abuse control if they have restrictive effects on competition', giving the example of bundling products within the same group, that would have raised, if accepted, the risks of transfer of market power or exploitation of the opposite side of the market²⁹⁶¹. This reference to competition law aims to establish some form of conceptual coherence between these two separate regimes, although the BKA is careful to note that this is a response to Facebook's argument that competition law recognizes group privileges. Following a quite thorough analysis, the BKA also finds no justification of such practices under Articles 6 and 9 of the GDPR. In particular, the BKA notes the absence of voluntary consent by the users for this data aggregation, in view of the take-it-or-leave it and conditional nature of the exchange and the 'clear imbalance' between the data controller and the data subject in this case, as Facebook disposes of a dominant, almost quasi-monopolistic, position on the market²⁹⁶². Indeed, 'it cannot be assumed that individuals give their consent voluntarily since users are forced to consent to data processing terms when they sign up for a service provided by a company that has a dominant position in the market.'²⁹⁶³ 'Free choice' within the meaning of data protection law cannot be assumed in the presence of such 'clear imbalance.' Finally, the BKA notes that the need to process data collected from other Facebook-owned services or third parties is not necessary for the performance of the contract with the Facebook user, in particular as the contents of the contract are unilaterally imposed on the data subject by the data controller. The BKA observed that Facebook has a 'special responsibility' when considering the necessity of the data processing conditions unilaterally imposed, in view of the difficulty of users to evade the terms of service of Facebook in view of its dominance and hence one needs to examine thoroughly the existence of voluntary consent for the processing of data. It also rejected Facebook's argument that the data processing was necessary for contractual purposes, as it enabled a more personalized user experience and the need to improve the quality of the service to the users. The BKA noted that '(t)his view means the company would be entitled to unlimited data processing solely on the grounds of its business model and product properties as well as the company's idea of product quality', something that the BKA categorically rejected²⁹⁶⁴. Indeed, the BKA observed with regard to the collection of data of Facebook use that this was not necessary as Facebook could have achieved a high degree for personalization with the data generated from the Facebook website

2961 Ibid., para. 613.

2962 Ibid., paras 645 & 646

2963 Ibid., para. 643.

2964 Ibid., para. 692.

itself²⁹⁶⁵. This is particularly interesting as it may constitute an argument that may also be relevant in the context of excessive data extraction claims and would neutralize the argument often put forward by digital platforms that data extraction is not excessive to the extent that it improves the quality of the product, for instance through increased personalization. One may also doubt of the effectiveness of this argument in view of the fact that this increased personalization may lead to instances of future exploitation, and not just for enabling targeted advertising. As the BKA notes, '(a)nother particularly problematic aspect' of such data processing as the aggregation of data across Facebook-owned and third party websites enables 'active fingerprinting' and 'detailed profiling' of the users that 'leads to a massive additional invasion of privacy, since profiling tracks the affected users via an immense number of websites and apps, and the captured data is combined both with the data from Facebook-owned services and with the Facebook user data.'²⁹⁶⁶

It is remarkable that although the BKA made efforts to interpret the relevant provisions of the GDPR according to data protection law, it frequently made references to and used analogical reasoning when interpreting the GDPR with regard to competition law. For instance, it challenged Facebook's claim that the aggregation of this data across the various websites owned by Facebook aimed to promote 'consistency of the user experience' by noting that integrating services or functionalities, and share user data, 'is problematic under antitrust law' in view of the leveraging or maintenance of market power concerns that this may raise and the possibility to exclude other market players, create barriers to new entrants and enhance the lock-in effect by making switching providers more difficult.²⁹⁶⁷

In exploring the compatibility of Facebook's practices to the GDPR, the BKA took into account the legitimate interests of the affected stakeholders, in particular third parties, such as advertisers that want to buy targeted advertising from Facebook, and Facebook users. Of particular interest is the fact that the German competition authority has also framed the issue as relating to the protection of the citizens' constitutionally protected rights to 'informational self-determination.' To do this, the BKA did not, as usually competition authorities do, rely only on the preferences of the users/consumers as these are revealed in the marketplace, but made reference to the interests of the users/citizens as these 'revealed' in constitutional principles. The authority considered the promotion of 'informational self-determination' a socially valuable aim, as it is constitutionally protected, and did so without relying on consumers' preferences. According to the BKA, to the extent that the 'information sovereignty' of users is affected by continuous distortions by governments and businesses which are 'increasingly able to create detailed profiles predicting their behaviour (thereby exacerbating information imbalances and undermining personal autonomy) it is all the more important to ensure that the interests of individuals in the protection of their privacy and autonomy are safeguarded.'²⁹⁶⁸

2965 Ibid., para. 744

2966 Ibid., para 847.

2967 Ibid., paras 747-739.

2968 Ibid., para. 760.

Interestingly, the authority could have also focused on the quality dimension of competition and its reduction by the ‘loss of control’ of the users as they were no longer able to control how their personal data were used. However, the BKA made no effort to build such a quality narrative, simply because it would have had to explain why the users had not switched to different social networks if ‘informational self-determination’ was a parameter of quality and variety competition. For this to happen, the price revealed preference (or a contingent valuation method) would have required some analysis of substitutability between social networks that respect informational self-determination and those, like Facebook, that violated this principle. In contrast, the evidence basis on which the BKA seems to have built its theory of harm relates more to the citizens’ right to informational self-determination/privacy, as these are proclaimed and protected by the German constitution and data protection law.

The BKA balanced these rights of Facebook users for self-determination with the rights of Facebook for entrepreneurial freedom. In providing the balancing the German authority noted that the legitimate interests of Facebook cannot outweigh those of the Facebook users, in particular as the data processing was not necessary, and in view of the broader harms and disadvantages that such processing would impose on the data subjects, in particular for certain sets of sensitive data, type of data processing, the data subjects’ reasonable expectations and the position of the data comptroller.²⁹⁶⁹ With regard to the last factor, the BKA took into account the fact that ‘as a multinational company with a dominant position in the market, Facebook has the negotiating power to impose extensive data processing unilaterally on users’, in view of its ‘special bargaining power.’²⁹⁷⁰ This assessment of the position of Facebook was found relevant for performing the balancing of interests of the data subjects and data comptrollers and third parties according to data protection law. The BKA found relevant for this assessment the fact that Facebook unilaterally imposed these conditions on data processing to the users in its terms and conditions and data policies and that such policies present the ‘risk of further strengthening Facebook’s market power vis-à-vis-users by transferring this market power to other services’, thus by the same ‘strengthening the bargaining power and the possibility of imposing terms unilaterally.’²⁹⁷¹ These concerns are very well inspired by competition law theories of harm, such as leveraging and monopoly maintenance, now repurposed for the occasion as data protection theories of harm. Such harm may, according to the BKA, be even more important for users with some degree of vulnerability, such as adolescents.²⁹⁷² This introduces a horizontal fairness dimension as it makes possible the distinction between different groups of users, according to the degree of their vulnerability vis-à-vis the data comptroller. This detailed interests balancing was performed for both the conduct involving the processing of data harvested by Facebook-owned services, as well as those collected through the Facebook Business Tools, again arriving to a similar conclusion that the rights of the users outweigh those

2969 Ibid., para. 767.

2970 Ibid., paras 783 & 785.

2971 Ibid., para 785.

2972 Ibid., para. 786.

of Facebook and other third parties.²⁹⁷³ By finding that the GDPR-based justifications for Facebook's conduct did not apply, in view of the 'gross imbalance' between the interests of Facebook, only some of which are legitimate, and the protection of users' fundamental rights, the BKA concluded as to the existence of an infringement of the principles of the GDPR. This however did not automatically result to a competition law infringement, the BKA proceeding during the second step of the analysis to the competition assessment of this conduct.

Second, the BKA analysed how the infringement of data protection may be abusive within the meaning of the competition law provisions, in particular Section 19(1) GWB. The analysis here is structured in two sub-steps, the BKA first observing that there is some causal link between Facebook's market power and the abusive, according to data protection law, data processing conditions it imposes to its users, and then proceeding to a balancing of interests under antitrust law. With regard to the first step, the BKA adopted a rather flexible concept of causal link, not requiring evidence that the dominant position/market power was a necessary prerequisite for the specific abuse, but rather a sufficient condition. According to the BKA, 'the required link with market power is therefore not to be construed within the meaning of a strict causality of market power, requiring proof that data processing conditions could be formulated in such a way precisely and solely because of market power.'²⁹⁷⁴ Causality is thus perceived from a normative perspective, as a causality in relation to the outcome, rather than as a causality in the form of a strict counterfactual or but for test that aims to determine a single, most important causal factor.²⁹⁷⁵ According to the BKA, 'there is a normative-causal connection in the vertical relationship with private users between the existence of a dominant position in the market and the violation of the relevant assessments under data protection law', bringing it to the conclusion that the violation of data protection requirements in this case 'is a manifestation of Facebook's market power.'²⁹⁷⁶

Although this does not mean that this step of the antitrust analysis completely merges with the analysis under data protection law, at least at a conceptual level, in practice it becomes unclear how the two may refer to different issues. The BKA proceeds by integrating traditional competition law concerns over market power and the special responsibility of dominant firms in data protection law, putting some effort in advancing the conceptual consistency between these two regimes. Hence, it is now argued, as a matter of data protection *and* competition law that 'companies behaving in a similar way that do not have a dominant position in the market would need to be assessed differently' than undertakings with market power.²⁹⁷⁷ This brings the BKA to argue that data protection law takes into account the individual circumstances of the company, in particular its market dominance, in particular in the way it assesses the way the data was processed and possible justifications. It also enables it to reject the idea of accepting the data har-

²⁹⁷³ Ibid., para. 836.

²⁹⁷⁴ Ibid., para. 873.

²⁹⁷⁵ Ibid., paras 873 & 875.

²⁹⁷⁶ Ibid., para. 879.

²⁹⁷⁷ Ibid., paras 879 & 882.

vesting and processing allegedly violating data protection law as an ‘established industrial standard’ justifying Facebook’s policies to the extent that smaller rivals proceed to similar practices. According to the BKA, accepting this ‘could lead to the paradoxical outcome that smaller competitors... might be tempted to act in violation of data protection law under the “umbrella” of the dominant undertaking and the dominant undertaking could then refer to competitors’ conduct to justify its own behaviour.’²⁹⁷⁸ For the reasons mentioned above, the BKA does not have issue with the fact that under its interpretation a dominant undertaking, such as Facebook, may be subject to stricter data protection requirements than non-dominant undertakings.

Notwithstanding these remarks about the existence of a normative causal link, the BKA also considered that there was a strict causality between the data policies found problematic and Facebook’s dominant position as there was at least some ‘correlation’ of the violation of data protection law with market power.²⁹⁷⁹ The interpretation of the existence of a causal link becomes more apparent when the BKA examines the causal relationship between the unlawful data processing and Facebook’s market dominance with regard to the possible harm to competitors. The BKA notes that in advertised-based platforms, there is a high incentive for the platform to adopt problematic data processing practices that give access to the users’ data harvested from Facebook-owned services or third parties, as this helps the platform to make attractive offers to advertisers in the form of targeted advertising.²⁹⁸⁰ This risks however ‘transferring market power’ by making it more difficult for users, because of enhanced personalisation also in the context of these services, and the standardisation of product experience throughout Facebook-owned services to switch providers, thus reinforcing the network effects.²⁹⁸¹ This may also increase barriers to entry for potential competitors in the market for social networks.

The second sub-step is the performance of a balancing of interests, this time under antitrust law, taking into account the objective of the German competition Act to promote free competition. However, strikingly, the BKA holds that if the terms of business violate data protection values *as a result of* market power, then the antitrust balancing does not have ‘any independent significance’ to the data protection balancing, thus effectively creating a presumption of anticompetitive effect if there is violation of data protection law in conjunction with evidence of some causal link, and this as indicated in the previous paragraph is determined rather liberally a simple correlation being found sufficient evidence, with the existence of market power. This does not impede the BKA to perform such balancing in this case, as a precaution, noting however that in this case this ‘leads to the same outcome as the balancing of interests under data protection law.’²⁹⁸² The necessity of independent additional balancing under antitrust law is according to the BKA challenged by the previous case law of the Federal Court of Justice, which empha-

2978 Ibid., para. 884.

2979 Ibid., para. 880.

2980 Ibid., para. 887.

2981 Ibid.

2982 Ibid., para. 889.

sises that ‘if an infringement (of data protection law) is the result of market power...the abusiveness can no longer be called into question by a further (antitrust) balancing of interests.’²⁹⁸³ This rather blunt observation hints to the possibility that the BKA applies to conduct infringing data protection law a presumption of illegality under competition law, if there is some evidence of dominant position and of a loose causal connection between the conduct and the dominant position. This is explained from BKA’s conception that ‘the antitrust concept of the appropriateness of conditions relies on comparable concepts of appropriateness defined in other legal areas in similarly unbalanced negotiation situations such as legislation on general terms and conditions or data protection law’, these appropriateness rules in these other legal areas being ‘themselves the result of a balancing of interests with regard to the necessary reconciliation of interests in the negotiation of terms and conditions.’²⁹⁸⁴ The BKA also notes the similarity of the balancing factors, one of which is dominance, in both antitrust and data protection law, leading to the same outcome, which explains that the balancing of interests may be done ‘simultaneously under antitrust and data protection law.’²⁹⁸⁵ Interestingly, the enforcement of Section 19(1) GWB is seen as aiming to bring about ‘a balance of interests while taking the parties’ constitutional rights into account.’²⁹⁸⁶ The reference to constitutional norms and principles as meta-principles guaranteeing consistency of interpretation between antitrust and data protection law duties to dominant firms, in particular regarding the obligation to include assessments with regard to constitutional rights in assessments of interests under competition law, following the case law of the German Federal Court of Justice in *Pechstein*.²⁹⁸⁷ This is particularly significant, in particular in the presence of a dominant company imposing unilaterally problematic data policies and terms and conditions because it is ‘not subject to sufficient competitive control,’²⁹⁸⁸ even more so ‘if a monopoly or quasi-monopoly exists.’²⁹⁸⁹ The BKA observes that this makes it possible in the specific case of Facebook ‘to determine the abuse directly by comprehensively balancing interests, taking the constitutional rights of the contracting parties into account with regard to the exclusion of voluntary self-determination as a result of market dominance.’²⁹⁹⁰ Essentially, this makes it possible to refer ‘to the assessments under data protection law for the balancing of interests under antitrust law’, to the extent that there is already ‘a statutory decision on the balancing of fundamental rights’ under the GDPR (Article 6(1), this ‘technical substantiation’ also applying to the antitrust perspective. For the BKA this ‘unifies the balancing framework.’²⁹⁹¹ The BKA nevertheless makes some effort to connect the violation of data protection norms to some competition law theory of harm, hence the emphasis put on the reduction of consumer choice

2983 Ibid., para. 891.

2984 Ibid., para. 892.

2985 Ibid., para. 894.

2986 Ibid., para. 895.

2987 Ibid., para. 900, citing Federal Court of Justice, judgment of 7 June 2016, KZR 6/15 – Pechstein, para. 55 (juris).

2988 Ibid., para. 897.

2989 Ibid., para. 895.

2990 Ibid., para. 900.

2991 Ibid., para. 901.

that an unlimited data processing from the dominant firm would have, as users are not be able to switch to less intensive from a data processing perspective alternatives. The only choice left to users for avoiding this data processing would be to cease using the internet to a large extent or stop using popular services, such as WhatsApp.²⁹⁹² The BKA does not take issue with the lack of an economic quantification of the abusive conduct in terms of comparing the net consumer harm and benefit to a counterfactual, as it is often the case for analysing other exploitative practices, such as excessive pricing.²⁹⁹³ Such economic quantification 'hardly seems possible' in this case. However, this cannot challenge the finding of consumer harm. As the BKA notes, 'it can be assumed that the conduct contested can also lead to potential user harm in economic terms', as '(e)ven the collection of data itself can lead to behavioural changes among users.'²⁹⁹⁴ Furthermore, the BKA notes that '(u)sers might potentially suffer material (financial) harm if Facebook discloses data to third parties...leading to identity theft, extortion or fraud', but also 'non-material damage' to the extent that the collection of data 'may reveal information that the user considers worthy of protection and which is not provided voluntarily such as income, location, diseases, political views or sexual orientation.'²⁹⁹⁵ The potential of harm is even more likely to occur in view of the perverse incentives of the data controllers to harvest 'too much data', as they may benefit from the increased monetisation potential of an extensive data collection, while users 'bear the bulk of the potential financial (and intangible) costs incurred.'²⁹⁹⁶ In any case, the BKA rejected any attempt by a dominant undertaking to justify restrictions of data protection, in particular if these concern the fundamental rights of individuals on the basis of possible positive effects that such violations may bring to its economic performance. According to the BKA, 'the balanced consideration of welfare effects within the framework of the balancing of interests under antitrust law must be countered by the fact that the breach of legal protection provisions which are intended to benefit users cannot be justified.'²⁹⁹⁷ This indicates that it is not possible for the dominant undertakings to put forward objective justifications to justify the alleged anticompetitive conduct in this case, bringing the approach followed by the BKA close to establishing a per se prohibition, under competition law, for dominant undertakings to violate data protection rules if there is some loose causal link between the infringement of data protection law and the existence of market power.

The BKA's Facebook case constitutes one of the first examples of exploitative conduct cases involving UTC and UPC because of its effects on privacy. The authority made efforts to put forward a consistent interpretation of competition law to data protection law and to establish a conceptual framework that would enable the simultaneous application of both areas of law. Concepts of data protection law were repurposed for the

2992 Ibid., para. 903

2993 Ibid., para. 906.

2994 Ibid., para 909. This may hint to the possibility of behavioural harm, explored in Section 8.3.2.2., but the BKA does not provide any further detail as to the way behavioural changes may constitute harm to users.

2995 Ibid., para. 910.

2996 Ibid., para. 911.

2997 Ibid., para. 913.

occasion so as to match existing concepts and concerns in competition law, taking what has been called by some a strategy of 'cross-institutional isomorphism'.²⁹⁹⁸

Of course, the possibility for a specific conduct to fall under another area of law prohibiting abusive contractual or trading terms is always there. And different jurisdictions may arrive to different choices as to the regulatory strategy to be adopted. For instance, similar types of data harvesting have been sanctioned in Italy on the basis of consumer protection law.²⁹⁹⁹

In the US, additional possibilities are offered through specific tools, such as Section 5 of the FTC Act concerning unfair or deceptive acts or practices in or affecting commerce. In the context of the assessment of the merger between Google and Doubleclick, an FTC order required Facebook to secure consumers' affirmative consent before altering their privacy settings.³⁰⁰⁰ In 2011, Facebook settled with the FTC concerning charges that it deceived consumers when it refused to keep privacy promises. In a letter to Facebook on 10 April 2014, the FTC wrote that WhatsApp had notified users about the limited nature of the data it collects and shares with third parties, and highlighted that those promises exceeded the protections that Facebook users enjoy. The FTC wrote to warn Facebook that it must continue to honour WhatsApp's promises to consumers. Any breach could violate Section 5 of the FTC Act³⁰⁰¹. The FTC referred to WhatsApp's privacy policy, dated 7 July 2012, in which WhatsApp indicated the types of data that it collects. The FTC noted that hundreds of millions of users chose to use WhatsApp's service based on the promises of privacy that it articulated in that notice. After announcing its decision to acquire WhatsApp, both Facebook and WhatsApp publicly stated that Facebook would abide by the promises in WhatsApp's privacy policies. The FTC intimated that the statements in WhatsApp's privacy policy represented enforceable promises to consumers about the manner in which WhatsApp collects and uses their data. The FTC viewed any failure to keep promises about privacy as a deceptive practice under Sect. 5 of the FTC Act. The FTC further interpreted Sect. 5 as applying when a company uses data in ways that breach promises that had legal effect when it collected the data, unless consumers expressly consent to any changes. WhatsApp's privacy policy stated that it will not utilize customers' information for advertising purposes or sell that information to third parties for commercial or marketing purposes without obtaining users' consent. The FTC recommended that Facebook follow that procedure if WhatsApp begins to collect, use, or share data in a way that is materially inconsistent with the promises in effect when it collected the data. In that situation, consumers should have the opportunity to opt out of any changes. Alternatively, Facebook should notify consumers that they can stop us-

2998 See, I. Lianos, *Polycentric Competition Law*, (2018) 71(1) *Current Legal Problems* 161. This strategy involves the borrowing of instruments and/or the overall logic from a different institutional realm and transplant them back, 'repurposing them for the occasion.'

2999 CITE REFERENCE ITALY FACEBOOK

3000 FTC Press Release, *FTC Notifies Facebook, WhatsApp of Privacy Obligations in Light of Proposed Acquisition* (10 Apr. 2014), www.ftc.gov/news-events/press-releases/2014/04/ftc-notifies-facebook-whatsapp-privacy-obligations-light-proposed.

3001 FTC Letter from Jessica L. Rich to Facebook & WhatsApp (10 Apr. 2014), p. 1.

ing the WhatsApp service. Finally, the FTC referred to its 2011 Order enjoining Facebook from misrepresenting how it maintains the privacy or security of consumers' personal information. It reminded Facebook that the Order requires it to obtain the express consent of consumers before sharing their non-public information in a way that "materially exceeds any privacy setting.'

Issues of privacy came also up at the aftermath of the Facebook/Instagram merger. In August 2012, the FTC closed its non-public investigation of the merger between Facebook and Instagram, without taking any action. This unanimous decision permitted the parties to complete the deal.³⁰⁰² A few years later, the privacy practices of Facebook came again under scrutiny.³⁰⁰³ Users of Facebook reveal intimate information about themselves. A user's 'likes' of public Facebook pages is generally considered as an accurate indicator of that user's personality traits. Facebook had informed users that they can control the privacy of their personal information by adjusting their privacy settings. It had emphasized this ability to encourage users to share information. Starting in 2010, each user who installed an app consented, through default settings, to Facebook sharing with the third-party developer that created the app information about both the app user and the app user's Facebook Friends, despite those friends not having installed the app. Affected Friends could opt out of this disclosure only on Facebook's applications page, located on its website. They could not opt out from Facebook's privacy settings page. Third-party app developers provincially used that information to enhance the in-app experience or target advertising to app users and Affected Friends. They could use that information for identity theft, phishing, fraud, and other harmful acts.

In response to a 2012 FTC investigation, Facebook settled claims that sharing Affected Friends data with third-party developers of apps deceived users. The FTC issued an Order that prohibits Facebook from misrepresenting the ability of consumers to control the privacy of their information, the protocol to exercise the controls, and the boundaries to which Facebook adheres when making user information available to third parties.

After that FTC investigation, Facebook retained the same policy but posted a disclaimer to its privacy settings page, informing users that concerning the information they share with Facebook Friends, Facebook would make information about both parties available to the app makers. Four months after the FTC finalized the 2012 Order, Facebook removed the disclaimer while continuing to share Affected Friends data with third party developers and while still using the same separate opt-out setting. At a conference in April 2014, Facebook promised that it would cease permitting third party developers to access data about Affected Friends. Facebook informed third party developers that existing apps could continue to collect Affected Friend data for one year, until April 2015. After that date, Facebook arranged with dozens of developers, allowing them to continue to collect the data of Affected Friends. For a sub-group of app developers, that privilege lasted until June 2018.

3002 FTC Press Release, FTC Closes Its Investigation into Facebook's Proposed Acquisition of Instagram Photo Sharing Program (22 Aug. 2012), <https://www.ftc.gov/news-events/press-releases/2012/08/ftc-closes-its-investigation-facebooks-proposed-acquisition>.

3003 U.S.A. v. Facebook, Complaint for Civil Penalties, Injunction, and Other Relief, Case No. 19-cv-2184 (D.D.C. 24 July 2019).

According to the complaint, tens of millions of users relied on Facebook's privacy claims about confining the sharing of their information to Facebook Friends. Facebook knew or should have known that sharing data of non-consenting friends with app developers violated the 2012 Order because it replicated the same conduct that the Commission alleged was deceptive in the first count of the original Complaint that prompted the 2012 Order. The 2012 Order mandated that Facebook maintains a reasonable privacy program that safeguarded the privacy, confidentiality, and integrity of user information. This obligation was critical because Facebook was conveying private information from app users and Facebook Friends to millions of third-party app developers. Facebook did not track that data in an organized, systematic manner. And Facebook did not vet third party developers before bestowing access to consumer data.

The complaint argued that Facebook did not enforce its privacy terms adequately and was rather influenced by the financial benefit that third party app developers provided in return.³⁰⁰⁴ The severity of any consequences for violating its privacy terms and the speed with which they were administered depended on the financial benefit that Facebook determined that the developer offered to Facebook.³⁰⁰⁵ The FTC viewed this conduct as unreasonable.

Separate from violating the 2012 Order the complaint argued that Facebook violated Sec. 5(a) of the FTC Act by committing deceptive practices. Facebook had asked users to give personal information to benefit from security measures on the Facebook website or mobile application, including the user's phone number.³⁰⁰⁶ Facebook used the phone number as part of a two-factor authentication process. It further used the phone number to advertise to users, but never told users about the advertising purpose.³⁰⁰⁷

The final act that the FTC challenged related to privacy and facial recognition technology. In April 2018, Facebook revised its data policy to inform users that it would utilize the latest facial-recognition technology to identify people in pictures and videos that users uploaded if the user turned the feature on. This suggested that users needed to opt in to use facial recognition. Tens of millions of users who used Facebook with an older version of its facial-recognition technology needed to opt out to disable it. The contrast violated the 2012 Order by misrepresenting how consumers could control the privacy of their information.³⁰⁰⁸

Facebook ultimately agreed to pay a \$5 billion penalty and incorporate restrictions and a modified corporate structure that the FTC designed to bring more accountability for decisions the company makes about users' privacy. Facebook must create an independent privacy committee situated within Facebook's board of directors. Facebook must certify quarterly that it is complying with the privacy program mandated by the order. And it must review every new or modified product for privacy before implementing it,

3004 Id., paras 88-90.

3005 Id., para. 123

3006 Id., para. 13

3007 Id., paras 142-43.

3008 Id., para. 14.

while documenting its decisions about user privacy.³⁰⁰⁹

These issues may also be tackled from a data protection law perspective. These various options should not be considered as substitutes, requiring the choice of one among many possible tools, but as complements, to the extent that it is possible for a specific conduct to simultaneously constitute an infringement of competition law and another area of law (e.g. data protection law, unfair commercial practices). Such a toolkit approach may be emulated by other jurisdictions, in particular in the BRICS.

11.3.2.4. Exploitative requirement contracts

A possible theory of harm may result from the analysis of the requirement contracts bundling digital services with personal data provided in 11.2.2. The standard may be inspired from that employed against tying arrangements, although it should cater for the specific theory of harm resulting out of the reduction of privacy standards, manipulation or exploitation of consumers and a reduction of their consumer surplus or well-being. These conditions are the following: (i) the undertaking in question is dominant in the tying market (the market for the ‘free product’ (e.g. social network, search); (ii) the tying and tied goods are two distinct products (which is of course the case as there is a different market for personal data than that for search or social network services); (iii) the tying practice is likely to have an exploitation effect producing harm to the user – e.g. loss of consumer surplus, wealth transfer, reduction of innovation, reduction of privacy, behavioural manipulation and loss of autonomy; (iv) the tying practice is not justified objectively by efficiencies from which benefit the users (e.g. the data harvested improve the service or product provided to the user, in particular if personalisation has positive welfare effects. As it appears from the above this theory of harm may be standalone or be combined with one of the other theories of harm explored in this Section.

11.3.2.5. Behavioural manipulation

Although the ‘exploitation of attention³⁰¹⁰’ and ‘attention theft³⁰¹¹’ have been put forward as new forms of exploitative conduct in the digital age, the theoretical contours of these new forms of exploitation have been sketchy, and little has been done as to their operationalisation in the design of competition law standards, in addition to stressing the need for competition law to promote competitive attention markets³⁰¹². This literature lacks for the time being solid foundations on the significant research on manipulation in psychology and raises important questions as to the foundations of human consciousness.

3009 FTC Press Release, FTC Settlement imposes historic penalty, and significant requirements to boost accountability and transparency (24 July 2019), <https://www.ftc.gov/news-events/press-releases/2019/07/ftc-imposes-5-billion-penalty-sweeping-new-privacy-restrictions>.

3010 T. Wu, *The Attention Merchants* (Atlantic Books, 2016), 23.

3011 T. Wu, *The Attention Economy and the Law* (March 26, 2017). *Antitrust Law Journal*, Forthcoming, available at SSRN: <https://ssrn.com/abstract=2941094> or <http://dx.doi.org/10.2139/ssrn.2941094>.

3012 See, J.M. Newman, *Attention and the Law* (July 21, 2019), available at SSRN: <https://ssrn.com/abstract=3423487> or <http://dx.doi.org/10.2139/ssrn.3423487>

Research in psychology (trait theory) has put forward a Five Factor Model to describe the personality trait structure for all humans and offer some measurement of character³⁰¹³. This was first developed by Louis Thurnstone in his 1933 presidential address noting the presence of five independent common factors present in more than 60 trait vocabularies describing personality traits, thus putting forward these five factors as describing the underlying dimensions of personality and temperament: these traits are Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness to Experience.³⁰¹⁴ The five-factor model assumes that people have transcontextual personality dispositions which are highly stable over time, different situations, and social roles, these traits characterizing 'our very selves.'³⁰¹⁵ Hence, 'to be true to oneself is to behave in consistent accordance with one's own latent traits.'³⁰¹⁶ These five personality trait factors are also universal and transcultural and are linked to the biological unity of humans. Others however challenged the stability and the ahistorical and asocial nature of personality traits, arguing instead that these traits may have been influenced by culture or the specific social context and thus be culturally and historically conditioned and result out of 'cohort effects.'³⁰¹⁷

Organismic and existentially informed theories of personality advance a more 'contextual and dynamic view of the person,' their central point being that 'people do not always act in accord with their self; instead, they vary from situation to situation in the degree to which they contact and enact their true feelings and values'³⁰¹⁸. Hence, to be true to oneself within a specific role is 'to be able to behave in ways that feel personally expressive [...], authentic [...], or self-determined.'³⁰¹⁹

Behaviour is therefore function of the personality and the environment ($B=f(P, E)$)³⁰²⁰. Be-

3013 J.S. Wiggins (ed.), *The five-factor model of personality: Theoretical Perspectives* (Guilford Press, 1996)

3014 L.L. Thurstone, *The vectors of mind*, (1934) 41 *Psychological Review* 1.

3015 R.R. McCrae, P.T. Costa Jr, *Personality is transcontextual: A reply to Veroff*, (1984) 10 *Personality and Social Psychology Bulletin* 175-17; R.R. McCrae & O.P. John, *An introduction to the five-factor model and its applications*, (1992) 60 *Journal of Personality* 175; R.R. McCrae & P.T. Costa Jr, *The stability of personality: Observations and evaluations*, (1994) 3 *Current Directions in Psychological Science* 173.

3016 K. M. Sheldon, R. M. Ryan, L. J. Rawsthorne, & B. Ilard, *Trait Self and True Self: Cross-Role Variation in the Big-Five Personality Traits and Its Relations With Psychological Authenticity and Subjective Well-Being*, (1997) 73(6) *Journal of Personality and Social Psychology* 1380.

3017 R.B. Cattell, *The description of personality. 1. Foundations of trait measurement*, (1943) 50 *Psychological Review* 559; R.B. Cattell, *The description of personality: Basic traits resolved into clusters*, (1943) 38 *Journal of Abnormal and Social Psychology* 476.

3018 K. M. Sheldon, R. M. Ryan, L. J. Rawsthorne, & B. Ilard, *Trait Self and True Self: Cross-Role Variation in the Big-Five Personality Traits and Its Relations With Psychological Authenticity and Subjective Well-Being*, (1997) 73(6) *Journal of Personality and Social Psychology* 1380, 1380.

3019 Ibid. citing A.S. Waterman, *Personal expressiveness: Philosophical and psychological foundations*, (1990) 11 *Journal of Mind and Behavior* 47; R.M. Ryan, *Agency and organization: Intrinsic motivation, autonomy and the self in psychological development*, in J. Jacobs (ed.), *Nebraska Symposium on Motivation: Developmental perspectives on motivation* (Vol. 40, University of Nebraska Press, 1993) 1; E.L. Deci & R.M. Ryan, *Intrinsic motivation and self-determination in human behaviour* (Plenum Press, 1985).

3020 K. Lewin, *Behavior and development as a function of the total situation*, in L. Carmichael (ed.), *Manual of child psychology* (Wiley, 1946), 791.

haviorists, such as Skinner choose to focus more on the physical environment. Although not rejecting the existence of self (mind), Skinner was more interested in observable behavior, as opposed to internal events like emotion, arguing that through 'operant conditioning' an individual can make an association between a particular behaviour and a consequence.³⁰²¹ The concept of reinforcement also emphasises that behaviour which is reinforced tends to be repeated, and thus strengthened, while behaviour which is not reinforced tends to be extinguished (weakened). Behaviour may thus be influenced by reinforcers, as well as by punishers, decreasing the likelihood of the behaviour being repeated. According to behaviourists, through operant conditioning it is possible to modify and shape behaviour, for instance by a system of tokens later exchanged for rewards.

Other approaches focus on internal psychological states, even non-conscious mechanisms. Self Determination Theory (SDT) offers a motivational account of behaviour, which assumes that individuals are active organisms acting on the basis of internal structures and thus making use of both their internal and external environments. Motivation relates to 'energy, direction, persistence and equifinality; characterizing activation and intention.'³⁰²² Hence, human motivation may be intrinsic, human beings when performing an activity making use of internal structures which form part of their perception of the phenomenal core of the *self*, as well as extrinsic, to the extent that human behaviour occurs for reasons other than the activity itself. SDT theory makes a distinction between 'autonomous motivation', which comprises both intrinsic motivation and the types of extrinsic motivation in which people have identified with an activity's value and ideally will have integrated it into their sense of self, thus experiencing a 'self-endorsement of their actions', and 'controlled motivation' which, in contrast, 'consists of both external regulation, in which one's behavior is a function of external contingencies of reward and punishment, and introjected regulation, in which the regulation of action has been partially internalized and is energized by factors such as an approval motive, avoidance of shame, contingent self-esteem, and ego-involvements.'³⁰²³ Behaviour is energized and directed by both autonomous and controlled motivation, the lack of motivation and intention marking the other pole (amotivation). Psychologists distinguish six categories of regulation of an activity in the self-determination continuum, in view of the respective role of intrinsic and extrinsic motivation (external regulation) (see Figure 11.1.):

- *Amotivation*: there is no intention to act;
- *External Regulation*: which denotes extrinsically motivated behaviour which is performed to satisfy an 'external demand or reward contingency', individuals typically experiencing such behaviour feeling controlled or alienated, their actions being perceived by them as having an external locus of causality

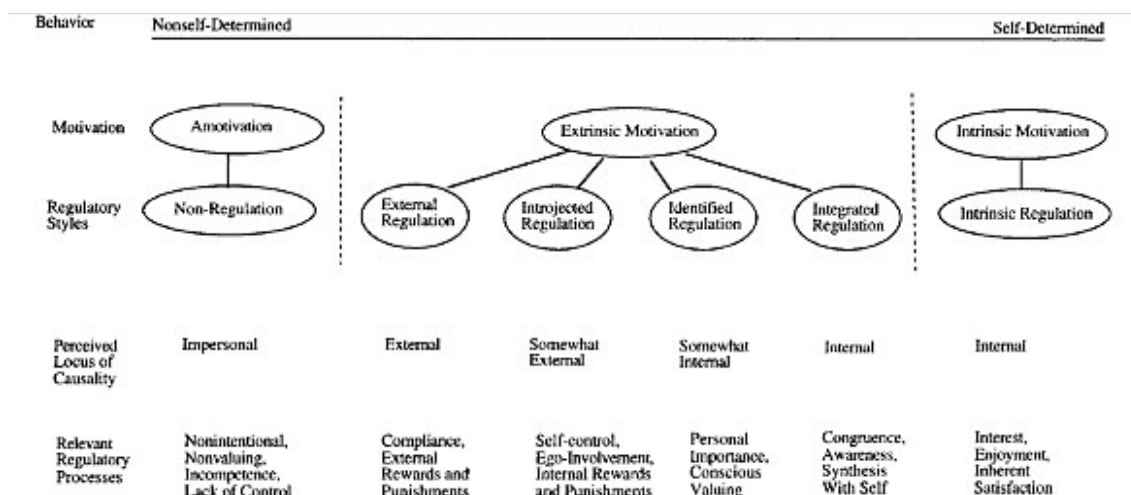
3021 See, B.F. Skinner, *The Behavior of organisms: An experimental analysis* (Appleton-Century, 1938); B.F. Skinner, *Science and human behaviour* (Simon and Schuster 1953).

3022 R.M. Ryan & E.L. Deci, *Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development and Well Being*, (2000) 55(1) *American Psychologist* 68, 69.

3023 E.L. Deci & R.M. Ryan, *Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health*, (2008) 49(3) *Canadian Psychology* 182, 182.

- *Introjected Regulation*: involves taking in external regulation but ‘not fully accepting it as one’s own’, the behaviour being performed ‘to avoid guilt or anxiety or to attain ego enhancements such as pride’;
- *Identified Regulation*: involves ‘a conscious valuing; of a behavioural goal or regulation and represents a ‘more autonomous, or self-determined, form of extrinsic motivation’;
- *Integrated Regulation*: when regulation is ‘brought into congruence with one’s other values and needs, and thus fully assimilated to the self.
- *Intrinsic Regulation*: is marked by fully intrinsic motivations, the subject doing an activity for its ‘inherent satisfactions’³⁰²⁴

Figure 11.1.: The Self Determination Continuum



Source: R.M. Ryan & E.L. Deci, *Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development and Well Being*, (2000) 55(1) *American Psychologist* 68, 72

An ‘enormous amount’ of research, including empirical, shows that autonomous motivation, which we can locate as including the categories of intrinsic motivation, integrated regulation and identified regulation, ‘tends to yield greater psychological health and more effective performance on heuristic types of activities.’³⁰²⁵ Research shows that ‘there is a set of universal psychological needs that must be satisfied for effective functioning and psychological health’, in particular the needs for competence, autonomy and relatedness, which ‘predict psychological well-being in all cultures’, with no difference

3024 R.M. Ryan & E.L. Deci, *Intrinsic and extrinsic motivations: Classic definitions and new directions*, (2000) 25 *Contemporary Educational Psychology* 54.

3025 E.L. Deci & R.M. Ryan, *Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health*, (2008) 49(3) *Canadian Psychology* 182, 183. See also G.A. Nix, R.M. Ryan, J. B. Manly, E.L. Deci, *Revitalization through Self-Regulation: The Effects of Autonomous and Controlled Motivation on Happiness and Vitality*, (1999) 35(3) *Journal of Experimental Social Psychology* 266; V. I. Chirkov, R. Ryan, K. M. Sheldon, *Human Autonomy in Cross-Cultural Context: Perspectives on the Psychology of Agency, Freedom and Well-Being* (Springer, 2011).

for cultures valuing individualism and those valuing collectivism.³⁰²⁶ There is also evidence that a controlled regulation environment depletes energy and may affect vitality, and thus performance. Hence, options should be offered to users in a non-controlling way, if we are to preserve rather than undermine autonomy. Even if law and policy may only impact on one only dimension of the broader environment affecting an individual's autonomy, research in psychology may provide a lot of wisdom for the definition of possible theories of user/consumer harm in competition law, thus providing some relief from corporate conduct that reduces autonomy.

Self-determination and autonomy may be reduced by active manipulation by corporations of consumers' biases.³⁰²⁷ Manipulation may take a more industrial scale in digital markets. This has led to an emerging body of scholarship attempting to define manipulation in both offline and online contexts,³⁰²⁸ but also some concerns expressed by regulators³⁰²⁹. Calo expressed the problem of self-determination and autonomy of digital consumers as linked to the mediating role of technology, which enables some business actors 'to design every aspect of the interaction with the consumer.'³⁰³⁰ One may certainly envision manipulation as involving an intervention that changes the way someone behaves. Hence, but-for this intervention the person would have behaved differently. Susser et al note that intervention may, in abstract, take the following two forms: (i) change the 'decision space' of an individual, for instance by changing the options available to them, and (ii) change 'their internal decision-making process', in order words, 'the way they understand their options.'³⁰³¹

The difficulty consists in determining what distinguishes manipulation from other forms of intervention, such as simple influence or persuasion. The latter does not raise concerns with regard to self-determination and autonomy as it makes an appeal to the person's decision-making power. Spencer defines manipulation as 'an intentional attempt to influence a subject's behaviour by exploiting a bias or vulnerability.'³⁰³² The manipula-

3026 E.L. Deci & R.M. Ryan, Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health, (2008) 49(3) Canadian Psychology 182, 183.

3027 J D. Hanson & D A. Kysar, Taking Behavioralism Seriously: The Problem of Market Manipulation, (1999) 74 New York University Law Review 630.

3028 See, in general, R. Calo, Digital Market Manipulation, (2014) 82 George Washington Law Review 995; E.A. Posner, The Law, Economics, and Psychology of Manipulation (June 11, 2015). University of Chicago Coase-Sandor Institute for Law & Economics Research Paper No. 726, available at SSRN: <https://ssrn.com/abstract=2617481>; F.Z. Borgesius, Improving Privacy Protection in the Area of Behavioural Targeting (Kluwer Law International, 2015); T.Z. Zarsky, Privacy and Manipulation in the Digital Age, (2019) 20 Theoretical Inquiries in Law 157; S.B. Spencer, The Problem of Online Manipulation (March 12, 2019), available at SSRN: <https://ssrn.com/abstract=3341653>; D. Susser, B. Roessler, H.F. Nissenbaum, Online Manipulation: Hidden Influences in a Digital World (December 23, 2018), available at <https://ssrn.com/abstract=3306006>.

3029 European Data Protection Supervisor, Opinion 3/2018, EDPS Opinion on online manipulation and personal data (March 19th, 2018), available at https://edps.europa.eu/sites/edp/files/publication/18-03-19_online_manipulation_en.pdf.

3030 R. Calo, Digital Market Manipulation, (2014) 82 George Washington Law Review 995, 1003-1004.

3031 D. Susser, B. Roessler, H.F. Nissenbaum, Online Manipulation: Hidden Influences in a Digital World (December 23, 2018), available at <https://ssrn.com/abstract=3306006>, 11.

3032 S.B. Spencer, The Problem of Online Manipulation (March 12, 2019), available at SSRN: <https://ssrn.com/abstract=3341653>, 4.

tor targets the individual's capacity for self-government by acting on the person's extrinsic motivations in a way that deprives them of authorship, 'adjusting their psychological levers ... away from their ideal settings.'³⁰³³ The intent of the alleged manipulator is a factor emphasised by the literature.³⁰³⁴ Similarly, the hidden nature of the manipulative influence ensures that the manipulated person is unaware of this external regulation, thus excluding situations of introjected regulation from being considered as manipulation. Susser et al argue that 'at its core, manipulation is hidden influence – the covert subversion of another person's decision-making power' which functions by 'exploiting the manipulee's cognitive (or affective) weaknesses and vulnerabilities in order to steer his or her decision-making process towards the manipulator's ends.'³⁰³⁵ These may be cognitive biases, as explored in 10.2.5, or emotions and desires.

These authors also consider that deception does not constitute a necessary condition for manipulation, as there might be manipulation without deception. Similarly, nudging can be manipulative, but not all nudges are manipulative. Susser et al. Finally, coercion restricts acceptable options from which another person may choose, and constitutes a more direct intervention of external regulation of behaviour than manipulation. The same authors argue that the digital economy facilitates manipulation as it enables digital platforms to harvest and analyse personal data enabling them to identify more easily consumers' weaknesses and vulnerabilities: they can reach over various dimensions of human experience, and they are 'dynamic, interactive, intrusive' and set forth 'incisively personalizable choice architectures' that may steer consumer choice.³⁰³⁶ The subversion of the decision-making power of individuals through manipulation challenges their autonomy and self-determination, with harmful effects on their development and productivity. It also raises broader concerns if manipulation in consumer markets may be easily converted to power in the political sphere. Psychographic profiling identifying with increasing levels of accuracy personality traits becomes the new normal in the data economy, driving business practices and enabling targeted forms of advertising at the individual consumer level without any comparison, in terms of effectiveness, with regard to the tools of traditional advertising.

Prior to accepting the claims for manipulation lays a more fundamental debate, that of the nature of human consciousness. Phenomenology and Cartesian thinking insists on the distinction between the brain and the mind, carefully distinguishing an 'internal' from an 'external' world, dividing our phenom in three parts: '(i) experiences of the "external" world, such as sights, sounds, smells, slippery and scratchy feelings of head and cold, and of the positions of our limbs'; (ii) 'experiences of the purely "internal world",

3033 D. Susser, B. Roessler, H.F. Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World* (December 23, 2018), available at <https://ssrn.com/abstract=3306006>, 15.

3034

3035 D. Susser, B. Roessler, H.F. Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World* (December 23, 2018), available at <https://ssrn.com/abstract=3306006>, 2. For a different position, see C. Sunstein, *The Ethics of Influence: Government in the Age of Behavioral Science* (Cambridge Univ. Press, 2016), 102-105.

3036 D. Susser, B. Roessler, H.F. Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World* (December 23, 2018), available at <https://ssrn.com/abstract=3306006>, 2.

such as fantasy images, the inner sights and sounds of daydreaming and talking to yourself, recollections, bright ideas, and sudden hunches'; and (iii) 'experiences of emotion or "affect"... ranging from bodily pains, tickles, and "sensations" of hunger and thirst, through intermediate emotional storms of anger, joy, hatred, embarrassment, lust, astonishment, to the least corporal visitations for pride, anxiety, regret, ironic detachment, rue, awe, icy calm'³⁰³⁷. This approach distinguishes between the brain where various of these stimuli are processed, and the 'self', the 'centre of narrative gravity', the latter being forming the 'core' of a person and the foundation of its autonomy. However, others have put forward a 'Multiple Drafts' model, where 'all varieties of perception – indeed all varieties of thought or mental activity – are accomplished in the brain by parallel, multitrack processes of interpretation and elaboration of sensory inputs', 'information entering the nervous system' being 'under continuous "editorial revision"'³⁰³⁸. These authors emphasise the development of streams of content that are subject to 'continual editing by many processes distributed around in the brain, and continuing indefinitely into the future', without there being a 'single narrative' (a 'final' or 'published' draft)³⁰³⁹, as understanding is a property that 'emerges from lots of distributed quasi-understanding in a large system'³⁰⁴⁰. 'Probing this stream at various intervals produces different effects, precipitating different narrative-and these are narratives'³⁰⁴¹. 'Any narrative... that does get precipitated provides a "time line", a subjective sequence of events from the point of view of an observer'³⁰⁴². This theory may raise interesting questions as to the definition of what constitutes 'manipulation', and in particular if such concept would be appropriate in the circumstances of the 'Multiple Drafts' model, and the different means through which it could be exercised. The approach and its empirical foundations have been subject to criticism and the conclusions reached may not hold³⁰⁴³, hence the need for more research and debate.

Defining the various parameters of the concept of manipulation affecting human consciousness is not the only challenge; it is also important to determine what would be the acceptable sources of evidence for manipulation and to design an appropriate test drawing not only on economics and behavioural economics but also psychology. This should be an important task for the future for competition authorities and academia.

11.4. Conclusion and Remedies

We are in favour of collective action to restore the conditions of a well-functioning data market. In the model we presented, in regime 2, we assumed that in the opt-out world there was significant competition so that the purchaser of personal information is forced

3037 D.C. Dennett, *Consciousness Explained* (Back Bay Books, 1991), 45.

3038 Ibid., 111.

3039 Ibid., 113.

3040 Ibid., 439.

3041 Ibid., 135.

3042 Ibid., 136.

3043 See, for instance, K. Akins, *Lost the Plot? Reconstructing Dennett's Multiple Drafts Theory of Consciousness*, (1996) 11(1) *Mind and Language* 1.

by competition to offer \$y, the full value of the personal information to the company. If such competition among purchasers of personal information were not present, and, for example, Google remained a monopsonist as in regime 3, the user would not be appreciably better off in the opt-out world rather than the opt-in world. So, a remedy cannot be just the change from opt-in to opt-out, but has to accomplish or at least imitate competition in the market for personal data sale.

A possible solution dealing with the risk that users are imposed conditions to which they did not provide they voluntary consent is that the 'default' regime be changed from 'opt-in' to 'opt-out.' Applying these principles to the case of social networks, one may argue that Facebook has no incentive to make this change on its own, and therefore this has to be achieved by regulation. This is certainly the choice made by the EU when adopting the GDPR, which put in place an 'opt out' regime. However, even if one changed to 'default opt-out', this will not have provided an adequate response, as the dominant social network may impose, because of its market dominance, the conditional use of the website to the 'consent' provided by the users of their data being harvested. Hence, an 'opt-out regime' will not be enough because of the asymmetrical bargaining power between the digital platforms enjoying a dominant position and the users.

One option may be to mandate that the digital platform offer the same product by asking for a fee, if data is not to be harvested and the users not being subject to targeted advertising. In cases in which the data of the specific user is quite valuable, it would be possible to require the digital platform to provide a positive payment to these users so that they can join the social network. Again this will raise several issues.

First, because of its dominant position Facebook may deny users 'free' access to its services if they opt to exercise their privacy rights, may overcharge users or not pay them the competitive price to join the social network or to buy their data. As discussed in 11.2.1., social networks of the size of Facebook have network effects and benefit from feedback loops. Strong network effects result in high market share inequality among networks, much higher profitability for large size network, barriers to entry for new networks, as well as providing the ability of a larger network to subsidize some 'influential' users to subscribe.

Second, another issue is, as mentioned in 11.2.4. the missing market that would enable users to evaluate the full cost and benefit of their transaction with Facebook. Once we understand the interaction between user and Facebook/Google as a *market* interaction we may fully grasp the possibility that the dominant position of the buyer of data (monopsony) may lead to inefficient exchanges, or that the monopsony buyer may have a lot of user-specific information and can implement sophisticated price discrimination strategies.

This calls for antitrust enforcement, in particular conduct as well as structural remedies, privacy regulation, but also other regulatory tools that would aim to set up a market between users and the network, ensure the transparency in the collection of data (so that users know what is collected), ensure transparency in the use of data (so that users

know how their data is used), and ensure user's consent in data collection and specific use eventually with a possible compensation to the user for 'selling' his data to a company like Google or Facebook.

Such regulation should also make 'opt-out' the default. If a user opts-out, Facebook or Google should not be able to use or sell the data the user discloses to Facebook/Google. Users may be compensated for opting-in, thus allowing Facebook/Google to use the user's raw data as well as his 'activities' and 'connections.' This default opt-out will create a *market* between the user and Facebook or Google, where the user sells his data to the digital platform. More concretely, with regard to Google, opt-out should be the default for browsers Android, and Google search. Users should have opt-out choice for other personal data, such as health data, even if this data was not acquired from the users. Users may also be able to easily set their browser to delete cookies and trackers at end of use/session and users should be able to avoid Chrome.

This opens the possibility for a possible compensation to the user for 'opting-in' that is, for 'selling' his data to a company like Google or Facebook. Depending on the extent that a user opts-in, he may be compensated in different amounts for allowing

- Collection ("opt-in") of his personal data directly from the company he interacts with (say Google);
- Use of his data for a specific purpose by Google (say for marketing vs political campaigns);
- Sale of data to third parties by Google.

The EU takes a different perspective as pricing remains unaffected by the opt-in/opt-out decision.

Pricing the data should nevertheless avoid the pitfall of letting the monopolist/dominant digital platform use its superior bargaining power vis-à-vis individual users to ask for the monopsony price (in terms of data harvesting). This raises the question of identifying the but-for the infringement world, in order to determine the competitive monetary value of the data and thus ensure the proper payment of the users (if positive prices are charged), or the amount the users should be asked to pay (in data value or monetary prices) in order to have access to the product. In building this counterfactual the decision-maker should take into account the situation prior to the competition law infringement (before-and-after test) and/or the situation at a comparable in terms of relevant characteristics geographic market which is nevertheless significantly more competitive than the market under examination.

Several other remedial options exist in order to restrict the privacy-harming potential of digital platforms with market power. It might be possible to break up the platforms horizontally by introducing in the market several horizontal competitors. However, there is a relatively low effectiveness for this remedy in view of the 'winner takes most competition' effect in markets with intensive network effects. Even if there are new entrants in this market, the resulting market structure may not be significantly different and competi-

tion will be for the market rather than competition in the market. A vertical separation of the platform from the merchants, by prohibiting them to expand in vertically related markets may also provide some temporary relief, but may also slip to some form of regulation, a hybrid between utilities' regulation and data protection/privacy regulation.

Platforms may opt to pay for the users' data thus leading to the emergence of a licensing market for user data for users opting-in to share their data with the platforms. At the same time this enables the users to port this data to platforms offering them a higher return and better conditions in terms of higher value for their privacy.

Exclusive licencing of personal data to a company will imply a monopsony and will not solve the problem of competition in the personal data market. We could institute non-exclusive licensing through a licensing agency that would collect the data from each user and distribute it to platforms. The user would be paid the sum of the willingnesses to pay of all the company bidders. What determines how much a user gets paid or pays? Assuming similar competing networks, a user would like a larger network because there are more possibilities of interaction, and therefore his willingness to pay $\$x$ increases in the size of the network. If we assume that the influence of a user is on a finite number of friends, a smaller network would be willing to pay more to add him, so $\$y$ does not increase with network size, for networks above a moderate size. Additionally, a dominant network will be able, in general, to pay users less and/or demand higher payments from users, because of the use of its market power, and of the information about the features of the users. So, we expect that most users will pay more to subscribe in a large and dominant network and be paid less by it. In order to determine what will constitute a 'fair' value one will need to refer to the value in a competitive market. However, this is not possible in the specific case as there is no perfectly competitive market and there cannot be one because of network effects. Digital platforms may exercise their buying power leading to a downward pricing pressure in the market for personal data for input suppliers (the users) and therefore deprive them from a portion of their revenues. Because of the buying power of digital platforms (or the monopsony they may benefit from) and the fact that this sorry situation results from the initial requirement contracts bundling digital services with personal data competition law should grant to the users a legitimate interest in prices which shall not be 'artificially' low. In some jurisdictions, low pricing may be found to be unfair pricing and therefore infringe the abuse of dominance provisions³⁰⁴⁴.

3044 Unfairly low prices may also be a concern for the application of Article 102(a) TFEU. This does not concern predatory prices, but situations in which a dominant buyer purchases inputs at unfairly low prices. These are determined according to a comparison between the price paid and the economic value of the service provided. In *CICCE*, the CJEU examined an action for annulment against a decision of the Commission relating to conduct by some French television stations holding exclusive broadcasting rights to pay low license fees for the rights of films and accepted that article 102(a) could apply in these circumstances, although in this case the Commission had not found an abuse, as it was impossible, in view of the variety of the films and the different criteria for assessing their value, to determine an administrable yardstick valid for all firms, since each film is different: *Case C-298/83 Comité des industries cinématographiques des Communautés européennes v Commission* [1985] ECR 1105. This type of theory of harm is more difficult to implement in the US, where since the *Weyerhaeuser* case of the Supreme Court in view of the high standards required for a successful claim of predatory bidding (the SCOTUS stipulating that the Brooke Group predatory pricing analysis applies

A possible solution to this problem is for NCAs to facilitate the users to collectively bargain with the platforms rates for the payment they will receive for the data harvested in order to protect their personal data.³⁰⁴⁵ The value of personal data and therefore the price to which these may be sold to digital platforms may also increase by some input limitations by a digital and/or data protection regulator as to the amount of data to be harvested or collective bargaining between the users and the digital platforms, eventually through the constitution of collecting societies by the users that would also bargain with the digital platforms.

Additional remedies that may address the problem of the lack of a market for personal data is data portability providing users the ability to export their social graph or their search history. This remedy is examined in more depth in Chapter 5.

Interoperability remedies may also intensify inter-platform competition. For instance, Facebook should change from a closed to an open communication network enabling its users to also send messages to users of other social networks. This would require the adoption of an open API for user messages, chats, posts, and other communications.

Finally, it is important to add the existence of technological solutions to the problem of restrictions to privacy by the business conduct of digital platforms or more generally user-initiated and driven practices that may frustrate the aims of the adds-based business model, such as adding Adblocks³⁰⁴⁶ and the development of tracking protection technologies³⁰⁴⁷. For instance, NCAs may mandate the development of a unique 'Do not track' switch that may apply for all networks and prohibit or even bring abuse of dominance cases for exploitation against Facebook or Google if they try to bypass these technologies or forbid their use in their platforms³⁰⁴⁸.

equally to the predatory pricing of outputs and predatory bidding for inputs). Since this case, however, the US antitrust authorities, and more generally the US antitrust community, have shown more openness of mind for such claims and in particular shown concern for monopsony power in antitrust and merger control (in specific sectors, such as agriculture, but also beyond). See, J. Shively, When Does Buyer Power Become Monopsony Pricing?, (2012) 27(1) Antitrust 87; C.S. Hemphil & N.L. Rose, Mergers that Harm Sellers, (2018) 127 The Yale Law Journal 2078.

3045 See, <https://www.economist.com/the-world-if/2018/07/07/data-workers-of-the-world-unite>.

3046 See, <https://iapp.org/news/a/the-privacy-consequences-in-the-rise-of-ad-blockers/>

3047 See, <https://blog.mozilla.org/blog/2019/06/04/firefox-now-available-with-enhanced-tracking-protection-by-default/> and <https://www.wired.com/story/privacy-browsers-duckduckgo-ghostery-brave/>.

3048 This may be necessary in view of the strategies of some of these platforms to put an end to the use of ad blocking software. See <https://www.inc.com/jason-aten/google-is-putting-an-end-to-ad-blocking-in-chrome-here-are-5-best-browser-alternatives.html>.

Chapter 12: Country Report – Brazil

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12.1. Introduction

The digital industry has been flourishing in Brazil. In several dimensions, such as internet access, consumers' internet usage, and the supply of digital services, Brazil presents high growth rates. Its growth pattern though reflects the profound income and educational inequalities that characterises the country, with considerable variability on those indicators across social groups. This chapter presents some basic features of the digital industry in Brazil and how it is regulated. Moreover, it assesses whether regulatory and competition authorities treat the digital industry differently from the conventional industries, due to its technological dynamics.

This chapter is structured in three sections, including this introduction. Section 2 presents basic information on industry features in Brazil, such as internet access, industry structure, and consumer behaviour. The institutional framework for the digital economy is then presented in Section 3, which emphasizes the regulation of digital services and the interface between regulation and competition policy in this industry. The conclusion with a brief summary of the main distinctive features of the Brazilian experience is presented in Section 4.

12.2. Industry and technological background

in order to fully understand the main findings regarding competition law and the digital economy, it is first necessary to introduce the current status of industrial and technological infrastructure in Brazil and how it has evolved throughout the years.

This section provides information on the infrastructure necessary to foster development of digital economy in the country. First, it shows that almost 70% of the Brazilian population has access to Internet and the level of access is directly proportional to high levels of education and income. The availability of internet networks is also examined.

Section 2 also looks at questions regarding Smart Cities and Internet of Things, reporting the current regulatory framework in Brazil and the initiatives that are already taking place in order to turn some municipalities into smart cities. The section concludes with a brief view on the role of social networks, the evolution of e-commerce, the affordability of networks in Brazil, and the market structure (i.e. concentration levels) in different digital segments.

12.2.1 Internet access penetration levels in Brazil

According to the latest survey conducted by the Brazilian Bureau of Statistics (in Portuguese, *Instituto Brasileiro de Geografia e Estatística*, "IBGE")³⁰⁴⁹, 75% of the households in Brazil have some access to internet, either through mobile phones or fixed broadband. By the end of 2017, the country had peaked at 126.4 million Internet users, representing 69.8% of the total population. Additionally, 97% of the users accessed internet through their smartphones. The mobile phone has largely surpassed the personal computer as the main point of internet access.

The same source provides different breakdowns about the profile of internet access, synthesized in the tables 1 to 7 below. The general pattern shows higher penetration levels of internet access in the Midwest, Southeastern and Southern regions of Brazil, which are also the wealthiest in the country. As expected, regions with lower population density, such as North and Midwest, have a higher proportion of mobile broadband in comparison to fixed broadband.

Also predictable, higher levels of access are concentrated in the young, urban and more educated groups of the population. It is also notable a slight convergence among age groups as the access is increasing faster in groups with lower access levels. There is no significant gender bias, but women are slightly more connected than men.

Table 1 – Internet Access per Device

Device for Internet Access	2016 (%)	2017 (%)
Mobile Phone	94.6	97
Personal Computer	63.7	56.6
Television	11.3	16.3
Tablet	16.4	14.3

Source: PNAD Contínua 2017.

Table 2 – Internet Users per Region

Country Region	2016 (%)	2017 (%)
North	54.3	60.1
Northeast	52.3	58.4
Midwest	71.8	76.6
Southeast	72.3	76.5
South	67.9	73.2

Source: PNAD Contínua 2017.

3049 https://biblioteca.ibge.gov.br/visualizacao/livros/liv101631_informativo.pdf

Table 3 – Internet Access per Area

Internet Access	%	Gender (%)
Urban Access	74.8	Male: 74.6
		Female: 74.9
Rural Access	39.0	Male: 36.3
		Female: 41.9

Source: PNAD Contínua 2017.

Table 4 – Internet Access per Age

Age	2016 (%)	2017 (%)
60+	24.7	31.1
55-59	48.1	55.2
50-54	55.7	63.6
45-49	62.9	70.7
40-44	69.6	76.5
35-39	76.0	82.0
30-34	79.9	84.6
25-29	83.8	87.5
20-24	85.2	88.4
18 or 19	85.4	88.1
14-17	82.5	84.9
10-13	66.3	71.2

Source: PNAD Contínua 2017.

Table 5 – Broadband Access per Country Region

Country Region	Fixed Broadband	Mobile Broadband
North	48.8	88.7
Northeast	74.2	63.8
Southeast	75.2	83.5
South	77.2	78.6
Midwest	74.7	82.0

Source: PNAD Contínua 2017.

Table 6 – Internet Access per Education Level

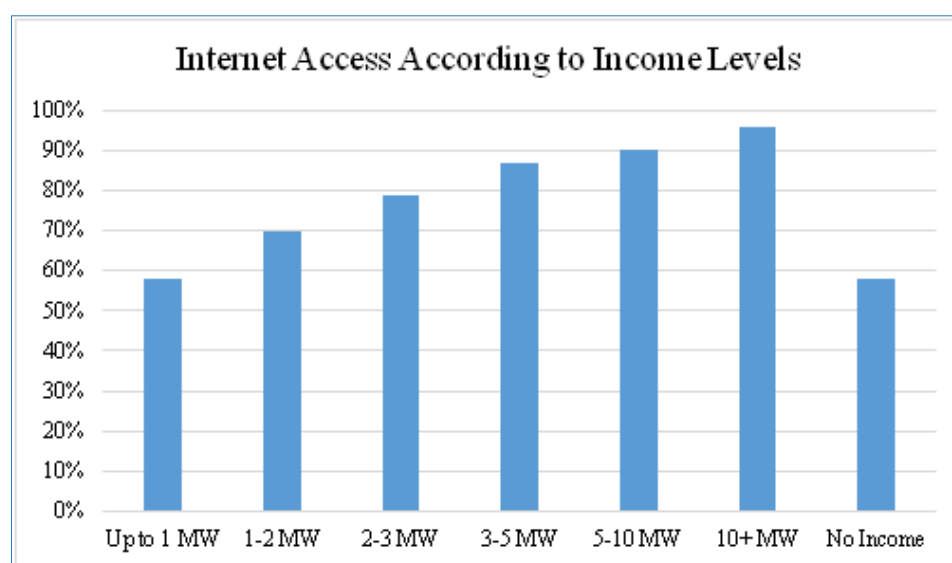
Education Level	Male %	Female %
University	96.8	96.0
Incomplete University	97.9	97.5
Secondary School	88.4	87.7
Incomplete Secondary School	84.8	85.5
Primary School	73.3	73.6
Incomplete Primary School	50.5	50.7
No education	11.4	11.1

Source: PNAD Contínua 2017.

Table 7 – Use of Internet Access (%)

Region \ Reason	Text Messaging	Voice/Video Calls	Streaming videos	E-mailing
North	95.7	77.7	75.3	55.4
Northeast	95.3	82.7	83.6	54.8
Southeast	95.7	85.0	81.4	71.8
South	95.2	82.2	82.0	70.9
Midwest	95.8	87.7	84.0	66.0

Source: PNAD Contínua 2017.

Figure 1 -Access according to income levels (MW = Minimum Wage)

Source: TIC Domicílios 2017.

Figure 1 shows that income is highly correlated with internet access. Among the richest households (more than 10 minimum wages per family; which is about US\$ 2,500 per month), almost all have internet access, whereas little more than half of the poorest are connected to the internet. Still, it is impressive that most individuals with income of up to 1 minimum wage (roughly USD 250) – i.e. living under 10 dollars a day – have some type of internet access. This information highlights how important connectivity has become in the Brazilian society.

One important quality dimension of internet access is the effective speed that users may enjoy. According to the Speedtest report, most cities in Brazil have an average effective speed higher than 10Mbps and 100% have average effective speed higher than 2Mbps (the minimum required speed to watch streaming videos). Still, Brazil is only the 63rd country in fixed broadband speed and the 79th in mobile, behind China (28th in fixed broadband and 44th in mobile) and ahead of India (74th and 126th, respectively). Brazil is more comparable to the other two BRICS. In fixed broadband, Russia ranks 47th in fixed broadband speed and 96th in mobile, whereas South Africa ranks only the 84th in fixed broadband speed, but 67th in mobile³⁰⁵⁰.

Overall, the data above show a high and increasing level of connectivity, with some relevant disparities across regions and income levels. Broader penetration is also associated to lower prices for data access. Although prices per Mbps remain high, they have decreased in the last seven years³⁰⁵¹. The inequality of connectivity along these lines reflects the broader inequality levels of Brazilian society and is not particular to internet usage. The Regional Plans for Development for the North and Northeast may be important instruments to tackle digital inequality, through development-targeted action plans with legal status, focussed on digital inclusion.³⁰⁵²

Availability of Internet Networks: institutional background

The Brazilian telecommunications sector experienced major regulatory changes in the end of the 1990s. Before such changes, the sector was fully operated by state-owned enterprises (SOE), under the umbrella of Telebrás, a holding company controlled by the Federal Government. Telebrás owned several subsidiaries and was responsible for the provision of more than 90% of the telecommunications services in the country. The scenario completely changed once the General Telecommunications Law (Law n. 9.472/1997) was enacted, establishing the new regulatory framework from Brazilian telecom sector.

The same law created the National Agency for Telecommunications (in Portuguese, *Agência Nacional de Telecomunicações* – “ANATEL”), which functions as sectorial regulator. As an independent regulatory agency, ANATEL rapidly rolled out a package of regulations opening the way for privatization of the Telebrás System in 1998. Since

3050 Data available at <https://www.speedtest.net/global-index>.

3051 Available at <https://exame.abril.com.br/tecnologia/preco-medio-da-velocidade-na-banda-larga-fixaiu-83-entre-2010-e-2018/>

3052 See e.g. Northeast Regional Development Plan <http://www.sudene.gov.br/prdne/documento> p 61-63.

then, the vast majority of the Brazilian telecommunications system has been privately owned, with very few exceptions (e.g. Telebrás was recreated in 2010, with a limited role, and Sercomtel, a small SOE controlled by the municipality of Londrina, in the state of Paraná)³⁰⁵³. The new regulatory framework for telecommunications, together with privatization, were the cornerstones for expansion of internet connectivity, through mobile and fixed broadband, in the early 2000s.

During the privatization process, state-owned Telebrás was split in twelve different holding companies for the bidding: eight companies³⁰⁵⁴ were responsible for mobile telephony and four landline companies³⁰⁵⁵. The bidding for the four landline companies imposed the obligation to meet universal access in the region serviced by the acquired operator – in practice, this meant providing services in the poorest areas of the country and villages in the countryside, far from the large centres.

According to the General Telecommunications Law, the provision of landline service is considered a ‘public service’, with universal access targets and more stringent regulation, including rate regulation of basic access. In this sense, landline incumbents (i.e. public service providers) are treated as utilities that need to fulfil public goals. Although internet access has never been defined as a ‘public service’ (it is considered a service under the ‘private law regime’, with more flexible regulation), some of the universal access obligations imposed on landline incumbents (e.g. expansion of backhaul access) has given support to internet connectivity.

The universal access obligations are always included in the General Plan of Universalization Goals (in Portuguese, *Plano Geral de Metas de Universalização* or “PGMU”). The first PGMU was released in 1998, before the privatization of Telebrás, in order to allow private groups to know beforehand what would be the required targets. The Plan sought to rapidly expand access to landlines to locations around the country. It expanded the number of landlines available from roughly 20 million in the end of the 90s to 40 million lines in 2003. This expansion helped to bridge the gap of access to a latent demand. However, because the targets were set in relation to availability of lines, and not lines in use, universal access in fixed telephony was never reached, and the affordability gap, coupled with the take-off of mobile networks, led to millions of idle landlines³⁰⁵⁶.

3053 Sercomtel offers its services in 198 municipalities in the state of Paraná, either through its own infrastructure or through a partnership with COPEL, the Paraná’s SOE for electricity.

3054 The eight mobile companies were Telesp Celular, Tele Sudeste Celular, Telemig Celular, Tele Celular Sul, TeleNordeste Celular, Tele Centro-Oeste Celular, Tele Leste Celular and Tele Norte Celular.

3055 For the bidding process, the country was divided in three regions, each one assigned to a different company: Tele Centro-Sul (for the Midwestern and Southern Brazil), Tele Norte-Leste (for the Northern and Eastern Brazil) and Telesp (dedicated exclusively to the state of São Paulo). The fourth company was Embratel, responsible for long-distance service.

3056 For a detailed discussion of the successes and pitfalls of these early rounds of universal access, see PEREIRA NETO, Caio Mario da Silva. *Universal Access to Telecommunications in Developing Countries: the Brazilian Case*. Yale Law School, 2005. Also, for an in-depth study of the universal access policies in Brazil and its developments fifteen years after the General Telecommunications Law, please see PEREIRA NETO, Caio Mario da Silva; ADAMI, Mateus Piva. *O desafio da universalização de telecomunicações: um balanço após 15 anos de LGT*. In. GUERRA, Sergio. *Regulação no Brasil: uma visão multidisciplinar*. Ed. FGV: Rio de Janeiro, 2013.

The actual universalization of voice telephony came with intense competition among mobile operators after privatization. With rapid expansion, mobile networks quickly surpassed fixed switched networks many folds. Today, as in many other countries, Brazil watches a slow decline in landlines and stabilization in the number of active mobile lines, which has reached a vast majority of the population. Brazil is currently in the fourth edition of PGMU and the focus has now changed to make broadband access available to all, a major challenge in a country of continental dimensions and deep inequality. The current PGMU is focused on expanding backhaul infrastructure and mobile LTE in small cities.

In 2010, the Federal Government launched the National Broadband Program (in Portuguese, *Plano Nacional de Banda Larga* or “PNBL”)³⁰⁵⁷. In order to achieve the goals of 40 million households with Internet access by 2014, the Federal Government recreated Telebrás, which became responsible for operating the backbone for the PNBL. Due to numerous reasons, including the failure of Telebrás of performing as expected³⁰⁵⁸, the PNBL was discontinued at the end of 2016 and was not able to achieve its central goals regarding expansion of broadband³⁰⁵⁹.

A more recent development regarding the availability of networks was Decree n. 1.602/2017. The decree establishes the “Connected Education” program, which seeks to provide broadband access to public schools. The goals of the program are to be reached by 2024. Most of the resources invested by the Federal Government intend to improve infrastructure, creating the necessary means to make broadband internet access available especially in rural areas.

12.2.2. Digital Economy Growth: smart cities, Internet of Things, and the corporate finance for the digital economy.

There are some key developments in the digital economy that both require a minimum level of infrastructure and internet penetration and, also, reinforce the digital economy growth. This is the case of smart cities and the Internet of Things, which involve a network of overlapping initiatives. To fuel this process of development it is also necessary to untie the problem of corporate finance, which also requires coordination among investors. This section presents some basic features of these key-developments for the digital economy in Brazil.

Smart Cities

A Smart City is “a city seeking to address public issues via ICT-based solutions on the

3057 Decree 7.175/2010.

3058 For a critic analysis of the PNBL, please see ALIMONTI, Veridiana. O Programa Nacional de Banda Larga e o Banda Larga para Todos: a perspectiva da sociedade civil. In. KNIGHT, Peter et al. Banda Larga no Brasil: passado, presente e futuro. São Paulo: Figurati, 2016

3059 <http://teletime.com.br/28/06/2017/pnbl-chega-ao-fim-sem-atender-as-regioes-mais-necessitadas/>

basis of a multi-stakeholder, municipally based partnership”.³⁰⁶⁰ In this sense, Brazilian cities are slowly undergoing the process of becoming “smart”. There are, however, some municipalities that have successfully started the transition to spend its resources more intelligently, providing for a friendlier urban space. Cities such as Curitiba, São Paulo, Belo Horizonte and Vitória are examples of Brazilian cities that have achieved the title of Smart City due to their initiatives.

One of the most relevant tools for Brazilian cities to become “smart” is the Internet of Things – IoT. Brazilian municipalities have great challenges that could be solved with the help of IoT: mobility, public security, energy and sanitation, innovation, urbanism and housing, health, education, governance, institutions and economic activity.

All of the above examples are present in the study *“Internet of Things: an action plan for Brazil”*, developed by the consortium McKinsey/Fundação CPqD/Pereira Neto | Macedo, which was used as a key input for the National Plan of Internet of Things. The consortium released its final report in January 2018. Besides providing a substantive overview of the IoT field in Brazil, it also focused on specific sectors³⁰⁶¹. In Brazil, one of the most relevant projects for Smart Cities is related to street lighting. The use of smart grids provides for a more efficient management not only of the energetic source, but also of utilities and functionalities connected to the energy network, such as consumption measurement, monitoring and telecommunications. Moreover, smart grids help to develop a more sustainable distribution network.

One of the first municipalities to have “smart” street lightings, the city of Caraguatatuba, in the state of São Paulo, changed all its street lamps to new lamps prepared to receive the smart grid, allowing the Mayor’s Office to receive up-to-date information through smartphones. Additionally, Belo Horizonte, the capital of the state of Minas Gerais, is also switching to smart street lighting, saving up to 45% of energy due to its remote management, allowing for more control of the lights: the intensity of a lamp will be adjusted remotely, for instance. The system also provides for a better exchange of information with other equipment, such as traffic lights and CCTV³⁰⁶².

It is important to notice that the experiences from Caraguatatuba and Belo Horizonte were implemented through a PPP – Public Private Partnership. The PPP can be an effective tool to help municipalities with lower revenues and greater risk allocation to the private party, becoming responsible for the maintenance of the infrastructure³⁰⁶³.

3060 EUROPEAN PARLIAMENT. Mapping Smart Cities in the EU. Directorate General for Internal Policies. 2014, p. 19.

3061 The full study is available at <https://www.bndes.gov.br/wps/wcm/connect/site/d22e7598-55f5-4ed5-b9e5-543d1e5c6dec/produto-9A-relatorio-final-estudo-de-iot.pdf?MOD=AJPERES&CVID=m5WWIld>

3062 BNDES. Produto 7A: Aprofundamento de Verticais – Cidades. Internet das Coisas: Um plano de ação para o Brasil. 2017. Available at: <https://www.bndes.gov.br/wps/wcm/connect/site/776017fa-7c4a-43db-908f-c054639f1b88/relatorio-aprofundamento+das+verticais-cidades-produto-7A.pdf?MOD=AJPERES&CVID=m3rPg5Q>

3063 ANTUNES, Vitor Amuri. Parcerias Público-Privadas para Smart Cities. 2ª ED. Lumen Juris: Rio de Janeiro, 2017.

The Brazilian Experience with Internet of Things

Despite its opportunity to foster and increase innovative entrepreneurship in Brazil, creating new markets and contributing to productivity and efficiency, the environment for Internet of Things in Brazil has not yet been developed to its full potential. This scenario started to undergo significant changes in 2016, when the National Bank for Economic and Social Development (“BNDES”) and the Ministry of Science, Technology, Innovations and Communications (“MCTIC”) signed an agreement to produce the National Plan for Internet of Things in Brazil, identifying actions to be taken in order to promote IoT in the country as model of development in several economic sectors.

As referred to above, the National Plan started with a deep study entitled *“Internet of Things: an action plan for Brazil”*³⁰⁶⁴ (Study). The study was divided in four different stages, each of them with specific goals: (i) diagnosis and aspiration for Brazil; (ii) selection of vertical (i.e. focused on specific industries and/or applications) and horizontal (i.e. across industries) strategies; (iii) research of most promising vertical strategies and preparation of a Vision and Plan; and (iv) implementation support of the Action Plan.

The study also suggested relevant changes in the regulatory framework, in order to foster the development and implementation of IoT in Brazil, with most of the suggestions related to the telecommunications framework. The greatest drawback in this aspect is the lack of wide connectivity, due to the availability of infrastructure in the country. To better use the available infrastructure, the telecom regulation should be reviewed in order to foster investments for its expansion. Moreover, it is important to map the use of licensed spectrum, aiming at verifying whether it is being rationally used and if its model is the best suited for IoT development.

The regulatory bureaucracy is another relevant obstacle for the development of Brazil's full potential in IoT. As pointed out in the Study, identified that the process of certification and accreditation of IoT devices carried out by the National Telecommunications Agency (“ANATEL”) is one of the most relevant regulatory barriers³⁰⁶⁵. There are two main problems related to it: first, it is a long, complex and time-consuming process; second, there are no international cooperation agreements that would waive the certification process if it had already happened in order countries. Streamlining this process is essential to allow faster adoption of IoT solutions.

On its turn, the questions related to the licensed spectrum tackle issues related to the necessary infrastructure in order to create a friendly environment for IoT development. The radiofrequency spectrum is a scarce resource and its use must be done in the most rational manner available. It is especially important for the development of IoT because most devices are mobile and must transfer its data through a specific frequency. Some changes seem particularly important on this area. First, the creation of a secondary market for radiofrequency use, allowing a better allocation of this resource and avoiding underutilization. This could also be implemented through business agreements known

3064 See n 13, supra.

3065 Id.

as “ran sharing” and “spectrum swap”, where operators share the use of spectrum. Second, the vast majority of IoT devices do not employ the same data networks commonly used by telecommunications (such as GPRS/EDGE and 3G/4G/5G), because it transfers smaller amounts of data. In this sense, the use of non-licensed spectrum, through Low Power Wide Areas Networks, could contribute to IoT’s expansion in Brazil.

The most recent development regarding IoT in Brazil was the enactment of Decree n. 9.854, of 25 June 2019. The Decree, which was partially inspired in the above-mentioned study, establishes the National Plan for Internet of Things³⁰⁶⁶ and creates the Chamber of Management and Monitoring of the Development of Communication Systems Machine-to-Machine and Internet of Things (“IoT Chamber”). The IoT Chamber is responsible for monitoring and evaluating initiatives, promoting and fostering partnerships between public and private entities, supporting and proposing projects, discussing with the public bodies and entities the themes of the action plan and jointly act to stimulate the use and development of IoT solutions.

The Decree is fairly broad and lacks a concrete roadmap for actions to be taken, but it represents a first step towards a more consistent development of IoT solutions in Brazil, also establishing a governance structure to deal with the challenge. The actual effectiveness of the Plan will largely depend on the capacity of such governance structure to coordinate both public and private actions needed to unleash the full potential of the IoT environment.

Despite the above policies, the Internet of Things, similarly to what was observed for smart cities, is still incipient in Brazil. Whereas the level of connectivity is increasing fast and already relatively high, both smart cities and the Internet of Things are a step behind. This imbalance suggests that individual demand for connectivity has been a major driver for internet use, since indicators more associated to market provision, such as individual access to the internet, perform better than those that require a higher degree of public coordination, such as smart cities.

Corporate Finance

There is no comprehensive data on the corporate finance for the digital industry in Brazil. Anecdotal evidence suggests that the major funding source for digital companies comes from venture capital and equity investment from larger economic groups, domestic or multinational. The case of 99, a ride-hailing company founded in Brazil, illustrates this point. The company first received venture capital from Brazilian groups, an amount enough for the company to reach the critical mass for the taxi hailing service. Later, when 99 entered the private ride-hailing market, competing directly with Uber, the company received a substantial investment from the Chinese Group Didi, which in a

3066 Internet of Things is defined as follows in the Decree: “The infrastructure that integrates the provision of value-added services with physical or virtual connection capabilities of things with devices based on existing information and communication technologies and their evolution, with interoperability.” (Art. 2, I). The governance structure of the Brazilian Strategy to Digital Transformation had been created by Decree n 9.319, of 21 March 2018.

couple of years acquired the control of 99. A similar pattern is observed in other sectors, such as fintechs or e-commerce.

12.2.3. How many consumers are actively engaging in e-commerce?

According to the IBGE survey (TIC Domicílios), in 2017, 35% of Brazilian internet users had engaged in e-commerce, acquiring products or contracting services through the internet in the last 12 months.

The 38th Edition of the Webshoppers Report³⁰⁶⁷, conducted by Ebit/Nielsen, also revealed interesting data regarding e-commerce in the country. For instance, the report shows that 68% of the e-commerce transactions happen through PCs, whereas 32% were concluded via mobile devices. The sales by mobile devices grew 30% in 2018 when compared to 2017, totalling 17.4 million transactions, a trend consistent with the increasing importance of mobile access to the internet, as presented in Table 1. However, these data also suggest that consumers still use comparatively more PC access for e-commerce (68% of transactions for 56% of PC access versus 32% of transactions for 97% of mobile access).

During the first semester of 2018, Brazil registered 27.4 million active consumers of e-commerce, which represents a 7.6% growth when compared to the same period of 2017. The average age of the Brazilian individual engaged in e-commerce is 43 years old and 51.5% of the consumers are female. In addition, Brazilian individuals spend 433 BRL (roughly 115 USD according to the exchange rate of February 2019) on average for each e-commerce transaction.

The beauty and health sectors are those with the largest volume of e-commerce transactions, summing up to 15% of all transactions in Brazil, closely followed by Fashion and Home Décor. When it comes to the value of the transactions, the purchase of telecom services and mobile phones represent almost 19% of all the Brazilian revenue originated from e-commerce. Home appliances come in close second.

A special note must be made to the tourism sector of e-commerce. In 2017, the revenue of e-commerce focused on tourism, including the online travel agencies (OTAs), reached BRL 35.1 billion (over USD 9 billion according to the exchange rate of February 2019), growing 17.8% in comparison to 2016.

12.2.4. Engagement with social networks

According to the report *Digital in 2016*, produced by We Are Social and Hootsuite³⁰⁶⁸, Brazil had 103 million active social media users in 2016, being it 88 million active mobile social users. In comparison to the country's population at the time, the number of active social media users represented 49% of the population. The same report produced in

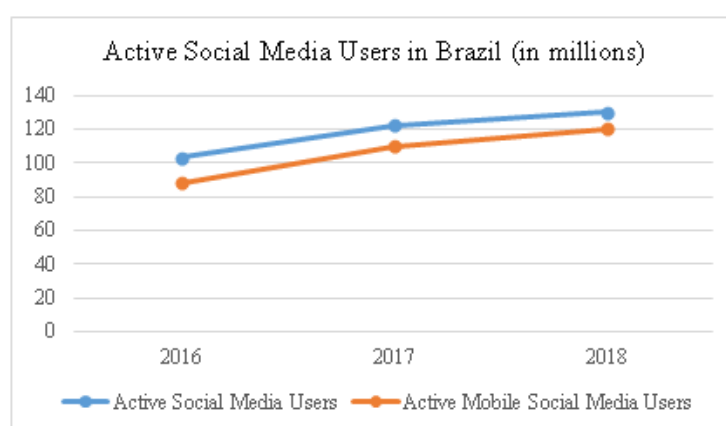
3067 Available at: < <https://pt.slideshare.net/LucasModesto6/webshoppers-37-2018> >

3068 Available at: < <https://www.slideshare.net/wearesocialsg/2016-digital-yearbook> >

2017³⁰⁶⁹ showed that Brazil had 122 million active social media users, with 110 million active mobile social users. On the 2018 report³⁰⁷⁰, the number of active social media users increased to 130 million, with 120 million active mobile social users. The penetration rate of social media in the country peaked at 62% of the population. Thus, from 2016 to 2018, active social media users experienced an average annual growth rate of 12.9%, whereas mobile social media users experienced an annual increase of 16.8%, even in an economy deeply under recession.

Another revealing information on the report was that the number of mobile subscriptions surpassed the country's population, totalling 237.7 million subscriptions, in comparison to a total population of 210.1 million people in Brazil. However, as the IBGE data shown above illustrates, there are still relevant gaps of access, mostly in the North and Northeast regions of Brazil and in the low-income segments of the population.

Figure 2



Source: Digital in 2018

Facebook and WhatsApp are by far the most important social media, followed by Instagram, and then Twitter well behind the other three (Table 8, below).

Table 8. Number of users of selected social networks in Brazil (January 2019)

Social Network	Users
Facebook	130 million
WhatsApp	120 million
Instagram	69 million
Twitter	8.57 million

Source: Statista.com

One should note that the three largest social media, in number of users, belong to the

3069 Available at: <<https://wearesocial.com/special-reports/digital-in-2017-global-overview>>

3070 Available at: <<https://wearesocial.com/blog/2018/01/global-digital-report-2018>>

Facebook Group. One should also be careful to not associate this position to a virtual monopoly position, inasmuch as the delimitation of the relevant market here is far from trivial. It is plausible to adopt narrower definitions, as was the case of the European Commission analysis of Facebook merger cases, for which the four social media listed below were in different relevant markets; or broader definitions, such as the market for attention and advertisement, which could indeed even encompass a much broader number of platforms.

12.2.5. Affordability of connectivity

As outlined above, Brazil underwent significant changes in its connectivity environment, rapidly expanding internet access through different types of technologies, especially mobile networks (LTE). Nonetheless, there is still a relevant portion of the country and of the population with limited access. According to the TIC Domicílios survey conducted in 2017, the high prices for internet access ranked as the main reason for lack of connectivity, according to responses given by 59% of the households interviewed. The survey also pointed out that due to the high prices, some users shared wireless access with its neighbours in order to reduce the burden of internet on the family budget.

It is relevant to point out the differences between affordability of access to networks in urban and rural areas. The lack of infrastructure is listed as the key reason for absence of internet access by 29% of the rural households, in comparison with 18% of urban households. Most of the internet access in rural areas is done through mobile connections: this is the main connection for 37% of the households in the rural areas, whereas in urban areas this number totals 25%³⁰⁷¹. Regional disparities exacerbate this scenario: the less connected municipalities in Brazil are in predominantly rural areas of the North and Northeast regions.³⁰⁷²

In the survey PNAD Contínua of 2017, a household official research conducted by IBGE, the unavailability of internet access services was listed by 21.3% of the rural population as the main reason for not accessing the internet. On the other hand, the same number in urban areas was of only 1.2%.

12.2.6. Industry structure: concentration levels in your jurisdiction (if available) for: (a) internet access providers; (b) search engines; (c) search networks; (d) online advertising; (e) cloud computing.

In Brazil, there are three large private providers of fixed broadband internet access: Claro, Vivo and Oi. Table 9 below lists their market shares. The last item in the table – “Competitive SCM Providers” – accounts for the market share of the remaining providers of broadband internet, excluding the three market leaders.

3071 <https://www.nic.br/noticia/na-midia/campo-conectado/>

3072 <https://www.cps.fgv.br/cps/telefonica/>

Table 9 – Market Shares for Broadband Providers (January/19)

Company	Share (%)
Claro (+Blue)	30,0
Vivo (+GVT)	24,2
Oi	19,0
Competitive SCM Providers	26,8

Source: Teleco.com.br

The market leaders – Claro, Vivo and Oi – employ different technologies for their broadband services. While Claro has most of its connections by cable modem, Vivo and Oi rely heavily on xDSL (Digital Subscriber Line), and more recent investments in fibre (especially from Vivo). Table 10 summarizes the technology employed by each of the market leaders and their respective number of access.

**Table 10 – Number of Accesses through Broadband Providers (June 2019)
(thousands)**

Company	xDSL	Cable Modem	Fiber	Spread Spectrum	Ethernet	LTE	Other
Claro	78	9.245	161	1	0	0	46
Vivo	5.098	0	2.170	0	0	0	118
Oi	5.023	0	597	0	96	0	39

Source: Teleco.com.br

There is a larger concentration of providers in mobile internet access, with four main players and an insignificant fringe (Table 11). Competition pressure, though, is higher in mobile since those providers overlap in several areas.

Table 11 – Market Share for Mobile Internet Access

Company	Share (%)	Mobile Phones (Millions)
Vivo	30,06	55.474
Claro	26,38	48.698
TIM	24,98	46.115
Oi	16,11	29.729
<i>Fringe</i>	2,47	4.555

Source: Teleco.com.br

According to StatCounter.com, Google was by far the most important player in the search engine market in Brazil as of January 2019 (Table 12).

Table 12

Search Engine	Market Share (%)
Google	97.68
Bing	1.11
Yahoo	1.07
DuckDuckGo	0.08

Source: StatCounter.com

As for e-commerce, the ten largest e-commerce companies in Brazil account for 62.7% of the e-commerce market. The market leader for e-commerce in Brazil is B2W Digital, a company that owns many online marketplaces. B2W Digital had a turnover of BRL 8.044 billion in 2018 (around USD 2.16 billion) and 100% of its sales originated from e-commerce. As in 2018 online sales reached BRL 53.2 billion (around USD 14 billion), it is estimated that B2W was responsible for 15% of the online Brazilian market.³⁰⁷³ Table 13 below lists the Top 10 e-commerce companies in Brazil:

Table 13 – TOP 10 E-COMMERCE COMPANIES IN BRAZIL (2017)³⁰⁷⁴

COMPANY	% OF E-COMMERCE SALES IN TOTAL SALES (2017)
B2W Digital	100%
Via Varejo	16,7%
Magazine Luiza	30,4%
Walmart Brasil	10,6%
Grupo Netshoes	100%
Máquina de Vendas	38%
Carrefour	3,5%
GFG LatAm – Dafiti	100%
Saraiva	37,6%
Privalia	100%

Source: Sociedade Brasileira de Varejo e Consumo.

3073 39th Edition Webshoppers – Report eBIT Nielsen, available at: <https://www.ebit.com.br/webshoppers>

3074 3,80 BRL = 1 USD. Report available at: http://sbvc.com.br/wp-content/uploads/2018/12/ranking_ecommerce-2018.pdf

12.3. Institutional framework for the digital economy in Brazil

the third section of this country report tackles the issues related to the institutional framework for development of digital economy in Brazil. The first item (3.1) explores the consumer protection structure in the country, especially looking at questions related to e-commerce and how the Consumer's defence Code may be applied in such cases. The following item (3.2) delves into questions related to the subjects of property rights protection in Brazil. After that, the report explores issues related to privacy and data protection regulation, especially considering the newly enacted General Data Protection Law (item 3.3).

The fourth section (3.4) and final item of the chapter is segmented in several different topics. It covers a range of institutional and enforcement issues, including the role of regulators and competition authorities. Concerning competition aspects, the topic covers some of the most relevant cases of digital economy scrutinised by the competition authority. There are also brief comments regarding the role of courts in enforcing competition law and regulations.

12.3.1. Digital consumer protection framework

The main legal statute that regulates and protects the consumer relations is Law n. 8.078/1990, which enacted the Consumer's Defence Code (CDC). Even though the code was written in the beginning of the 1990s, when e-commerce was not disseminated, the Code has been the subject of many new interpretations by the courts and amendments by the Congress, slowly adapting it to the context of e-commerce and digital consumption more generally.

First of all, article 6 of the CDC establishes the economic vulnerability of the consumer in contrast with the supplier of the goods or service. The consumer is then subject of a very specific protection in the Brazilian legal environment, which includes substantive protections (e.g. protections against false advertisement and abusive contractual clauses) and procedural protections (e.g. shifting the burden of proof to suppliers in legal disputes under the CDC).

The Brazilian courts have extended the effects of the CDC from physical sales to e-commerce transactions, with minor adaptations. As another example of consumer protection, especially applicable to the context of e-commerce, article 49 of the CDC grants the consumer 7 days to exercise its prerogative to change her mind and exit any transaction that takes place outside a physical store. In practice, it means that any e-commerce transaction may be reverted within this period, with no penalty.

The framework for protection of the digital consumer underwent meaningful changes in 2013, with the enactment of Federal Decree n. 7.962 by former President, Ms. Dilma Rousseff. The decree intended to update much of the CDC to the new reality posed by e-commerce. The digital consumer rights are now better expressed and the penalties to which the e-commerce companies are subjected for infringement of such rights.

A relevant case regarding consumer protection and digital platforms was ruled in 2014, by the Superior Tribunal de Justiça (STJ)³⁰⁷⁵. The case regarded the “credit scoring” practice conducted by credit bureaux in order to evaluate the history of payments of a given individual. If an individual paid his or her debts in a timely manner, the credit score would go higher, allowing for easier loans and better credit conditions. The issue addressed by the court related to the form in which the personal data was handled by the credit bureaux. According to the CDC, every collection of data from customers must be preceded by an express authorization of the data subject. The credit bureaux argued that the practice of credit scoring did not configure a new collection of data, but instead was only a methodology to process the data and evaluate risk from information already available and, thus, such consent would not be necessary.

Ultimately, the Court decided that such a methodology was legal and dismissed the requirement of a new consent by the data subject. Nonetheless, the Court also decided that the credit bureaux must comply with additional obligations set forth by the CDC and by Law n.12.414/2011. In this aspect, the bureaux must grant the consumers access to the information used to calculate their credit scoring³⁰⁷⁶. According to the Court’s opinion, such access enables the consumer to control the truthfulness of the information and to correct any misleading or outdated information that could negatively affect the score.

In brief, the Court ruled that the personal data must receive a transparent treatment and be handled with good faith at all times. If the bureaux do not respect any of the boundaries, the consumer could possibly be entitled to compensation³⁰⁷⁷.

In the antitrust field, CADE has also expressed its opinion regarding personal data and the limited role of competition authorities on such matters in at least two different opportunities.

The first opportunity was the association between TNL CPS S.A. and Phorm Veiculação de Publicidade. The association would enable Phorm to gather data from Oi’s users and then release targeted advertisements to selected users, based on their preferences. On this matter, CADE had an extensive opinion regarding privacy and internet and ultimately decided that it was not within CADE’s jurisdiction to address discussions regarding privacy. The association was approved without restrictions, and the evaluation of privacy concerns was sent to the Department of Consumer Protection and defence

3075 Docket n. 1.419.697/RS. Reporting Justice: Paulo de Tarso Sanseverino, landlines number in any 2 n issues. ding competition. activ Hotl Bank.prevail; or X – for when ant to Law no. social and e

3076 Article 3(3) of Law n. 12.414/2011 provides that excessive and/or sensitive information cannot be taken into consideration by the bureau when calculating someone’s credit score. Excessive information are understood as any and all information that is not bound to credit risk analysis; sensitive information, on the other hand, are the information related to social and ethnic background, health, genetics, sexual orientation, political views and religious beliefs.

3077 Scholars specialized on the matter have considered that the decision rendered by the Court was balanced well the interests of consumers and the credit bureaux. According to Rafael Zanatta, the decision was especially important because it acknowledged the right to data transparency and consumers’ rights to correct or update any data in order to improve their credit scoring. ZANATTA, Rafael A. F. Pontuação de Crédito e Direitos dos Consumidores: o desafio brasileiro. Instituto Brasileiro de Defesa do Consumidor. São Paulo, 2017.

(DPDC) in the Ministry of Justice, to ANATEL (telecommunications regulator) and to the Internet Management Committee.³⁰⁷⁸

The second occasion was also in a merger between Phorm and Telefonica Data S.A, in a similar association to the one between Oi and Phorm. The case was cleared at CADE, with Commissioners Marcos Verissimo and Ricardo Ruiz acknowledging the importance of the data and privacy discussion on the matter, but confirming that the issue was not under CADE's authority.³⁰⁷⁹

12.3.2 What is protected by property rights?

Several forms of protection may safeguard the appropriation of innovation in Brazil, ranging from traditional intellectual property rights (especially patents and copyright) to industrial and trade secrets.

Regarding traditional IPRs, copyright protection has greater importance in content digital markets and software. Copyright in digital markets related to content is increasingly a matter of debate. The protection of intellectual works lasts for 70 years from the death of the author (Law 9,610/98, of 19 February 1998 Art 41) or, in case of audio-visual works, from the first reproduction (Art 44). This naturally extends to works distributed by digital means (e.g. e-books and online audio-visual works). There has been an ongoing discussion about updates in the Copyright Law to take into account digital markets, resulting in a Draft Bill, subject to public consultation. One of the controversial issues has been the extent of fair use exceptions and the resort to Digital Rights Management (DRMs). However, there has been no consensus in the Ministry of Culture (now Ministry of Citizenship) on how to reconcile the views of different stakeholders in order to send the Draft Bill to Congress.

Meanwhile, courts are playing an important role in developing the body of law associated to copyright protection in digital platforms. This has led the courts to conclude that whereas internet providers do not need to monitor in advance the content posted by users, they must, once informed, immediately take down infringing content to be exempt from responsibility.³⁰⁸⁰ Copyright is excluded from the 2014 Civil Rights Framework for the Internet, which provides for a specific judicial notice-and-takedown procedure (art 19, §2 and art 31). Therefore, current Copyright Law and general provisions of the Civil Code regulate copyright protection of content in the digital platforms, until specific legislation is passed.³⁰⁸¹

The specific copyright protection of software in Brazil includes the software's source or object code, but not the technical and functional aspects of a code. The protection lasts for 50 years. There is a specific Software Law – Law 9,609 of 19 February, 1998 –

3078 Vote of Commissioner Furlan on Administrative Proceedings 08012.003107/2010-62.

3079 Vote of Commissioner Ruiz and Verissimo on Administrative Proceedings 08012.010585/2010-29.

3080 See, for example, Appeal no 1.186.616, Superior Court of Justice, Judge Minister Nancy Andrighi. 31 August 2011 involving Google Brasil Internet LTDA.

3081 See Leslie Rose, *O Código Civil Brasileiro em Inglês/ The Brazilian Civil Code in English* (Renovar 2008) art. 186 and 927.

³⁰⁸² which provides for an optional registration of the work, but companies may opt for simply using the industrial secret regime. This does not affect the claim of damages for copyright violation, as other evidence of software ownership are accepted by courts.³⁰⁸³ Brazilian courts reaffirmed that the software is protected since its creation, arising out of the novelty and creativity of the intellectual work.³⁰⁸⁴ Registration abroad is sufficient evidence of ownership.

Patent protection is less relevant in several platforms related to digital value chains in Brazil. One possible arena where patent is likely to play a special role is in the deployment of Internet of Things. According to the Study for the National Plan for IoT, incentives for the registration and ownership of patents by Brazilians through partnership with institutes and universities should be an important component of the policy to be implemented.³⁰⁸⁵ However, it is still too early to predict how IoT solutions will develop in the Brazilian market.

The National Institute of Industrial Property ("INPI") is responsible for granting patents and registering trademarks, industrial designs, technology transfer contracts, software and topography of integrated circuits. The applicable law is primarily the Brazilian Industrial Property Law (Law 9,279 of 14 May, 1996).³⁰⁸⁶ CADE and INPI have a technical cooperation agreement through which they exchange technical information and cooperate in their activities.

Among the *sui generis* IP rights connected to digital economy, one may cite the Brazilian Plant Variety Protection Act (Law 9,456 of 25 April, 1997),³⁰⁸⁷ which protects conventional plant breeding techniques not subject to patent protection. Another example is the protection of topography of integrated circuits, regulated by the Law 11,484 of 31 May, 2007 and lasting for 10 years. Images of the topography allow for the identification and characterization of the integrated system's originality.

Brazilian legislation also attributes protection on test data required for authorization of new veterinary products, fertilizers and chemicals for 5 to 10 years, by Law 10,603 de 22 December, 2002. The extension of protection to test data related to the approval of human medicine is absent in the current legislation, but has been subject to recent litigation. Criminal violation of digital commercial databases may be addressed by the provisions of unfair competition, according to art. 195 of Law 9,279 of 14 May, 1996, in line with art. 39 of the TRIPS Agreement.

³⁰⁸² Available at: http://www.planalto.gov.br/ccivil_03/LEIS/L9609.htm

³⁰⁸³ LUDMER, Eduardo, "Software Protection in Brazil – Register or Not?" July 2017 Available at <https://lexuniversal.com/en/articles/19366>

³⁰⁸⁴ Interlocutory Decision n 1,392,095 – Superior Court of Justice –Judge Minister Maria Isabel Galotti. Published on 04 February 2016.

³⁰⁸⁵ <https://www.bndes.gov.br/wps/portal/site/home/conhecimento/pesquisaedados/estudos/estudo-internet-das-coisas-iot>

³⁰⁸⁶ Available at: http://www.planalto.gov.br/ccivil_03/leis/L9279.htm

³⁰⁸⁷ Available at: http://www.planalto.gov.br/ccivil_03/leis/L9456.htm

Brazilian law does not recognise *sui generis* rights concerning databases, as in other jurisdictions.³⁰⁸⁸ The Copyright Law conditions the protection of databases to the result of intellectual creation derived out of the disposition, selection and organization of data (art. 7, XIII). It confers to database owners the exclusive rights for the partial or total reproduction of databases; their translation, adaptation or reorganization, and their distribution, copy and transmission to the public (art. 87). Under Brazilian law, the inclusion of protected copyright data in databases should be authorised by the right owner (art. 29, IX). On the other hand, facts, legal texts, names, addresses, sports results etc. can be freely included in databases and remain *res commune* even after their inclusion³⁰⁸⁹.

Finally, there is no specific IPR applicable to algorithms, which will be subject to the general regime of trade secrets.

12.3.3 Privacy/Data Protection Regulation

The General Data Protection Law – GDPL (Law n. 13.709/2018, known in Portuguese as *Lei Geral de Proteção de Dados* – “LGPD”) was enacted in August 2018. The GDPL regulates the treatment of personal data in Brazil, especially in the digital environment, and was inspired by the European regulatory framework set forth by the GDPR³⁰⁹⁰. By the time of its enactment, Brazil became the 127th country to adopt such specific legislation³⁰⁹¹. The law has a *vacatio legis* of twenty-four months, coming into force only in August 2020.

The GDPL has a horizontal application, affecting both public and private sectors, online or offline³⁰⁹². Consent is the cornerstone of the law for authorization of use of personal data, but there are other hypothesis allowing such use³⁰⁹³.

3088 LEMOS, Ronaldo. “Direito, Tecnologia e Cultura” (2005) FGV Direito Rio p. 143-144.

3089 Id p. 149-150.

3090 For further comparison between the Brazilian and European regulations, please see the document produced by DataGuidance and Baptista Luz Advogados, available at: <https://baptistaluz.com.br/wp-content/uploads/2019/05/DataGuidance-GPDR-LGPD-For-Print.pdf>

3091 LEMOS, Ronaldo. Lei de Dados nasceu desgovernada. <https://www1.folha.uol.com.br/colunas/ronaldolemos/2018/08/lei-de-dados-nasceu-desgovernada.shtml>.

3092 “The LGPD has transversal and multi-sectoral application, both in public and private sectors, online and off-line. With few exceptions, such as national and public security; pure research, artistic and journalistic purposes; any practice that process personal data will be subject to the law.” (MONTEIRO, Renato Leite. The new Brazilian General Data Protection Law – a detailed analysis. International Association of Privacy Professionals. Available at: <http://tinyurl.com/yycvm7yf>).

3093 MONTEIRO, Renato Leite. The new Brazilian General Data Protection Law – a detailed analysis. International Association of Privacy Professionals. Available at: <http://tinyurl.com/yycvm7yf>. According to article 7 of the Law: “Art. 7. Processing of personal data shall only be carried out under the following circumstances: I – with the consent of the data subject; II – for compliance with a legal or regulatory obligation by the controller; III – by the public administration, for the processing and shared use of data which are necessary for the execution of public policies provided in laws or regulations, or based on contracts, agreements or similar instruments, subject to the provisions of Chapter IV of this Law; IV – for carrying out studies by research entities, ensuring, whenever possible, the anonymization of personal data; V – when necessary for the execution of a contract or preliminary procedures related to a contract of which the data subject is a party, at the request of the data subject; VI – for the regular exercise of rights in judicial, administrative or arbitration procedures, the last pursuant to Law no. 9,307, of September 23, 1996 (“The Brazilian Arbitration Act”); VII – for the protection of life or physical safety of the data subject or a third party; VIII – to protect health, in a procedure

From an international perspective, it is important to stress that the GDPL bears extraterritorial application, similarly to the GDPR in the EU. Companies that conduct business in Brazil or have at least a branch in the Brazilian territory, offering services related to data collection and treatment, are subjects to the GDPL. Moreover, the law has several instruments to allow the international transfer of personal data. The transfer may happen based on consent of the individual or based on a guarantee given by the controller of the data that it will comply with individual rights and the data protection regime³⁰⁹⁴.

An interesting point of the recently enacted law is the concept of personal data and sensitive personal data. The former is broadly defined as virtually any data that can be associated to an identifiable individual; the latter is data that, due to its nature, may expose the data subject to discriminatory practices. The sensitive personal data must be treated differently, with additional security layers³⁰⁹⁵.

The original draft of the law provided for the creation of the National Data Protection Authority. However, the President vetoed its creation by the law, based on some formalistic concerns³⁰⁹⁶. A few months later, in December 2018, the Data Protection Authority was finally created through an executive order of the President (Interim Measure n. 869/2018)³⁰⁹⁷, subsequently converted into law by the Brazilian Congress.

According to the law that amends the GDPL, the Data Protection Authority ("DPA") will be established as a body of the Federal Public Administration, under the structure of the President's office. The law also provides that the DPA's status is transitory and is subject

carried out by health professionals or by health entities; IX – when necessary to fulfill the legitimate interests of the controller or a third party, except when the data subject's fundamental rights and liberties which require personal data protection prevail; or X – for the protection of credit, including as provided in the pertinent legislation".

3094 "In a similar way to the European Union's General Data Protection Regulation, the LGPD will have extraterritorial application, that is, the duty of compliance will exceed the geographical limits of Brazil. Any foreign company that has at least a branch in Brazil, or offers services to the Brazilian market and collects and treats personal data of subjects located in the country, regardless of the nationality, will be subject to the new law." (MONTEIRO, Renato Leite. The new Brazilian General Data Protection Law – a detailed analysis. International Association of Privacy Professionals. Available at: <http://tinyurl.com/yycvm7yf>)

3095 "Art. 5. For purposes of this Law, the following definitions apply: I – personal data: information of an identified or identifiable natural person; II – sensitive personal data: personal data concerning racial or ethnic origin, religious belief, political opinion, trade union or religious, philosophical or political organization membership, data concerning health or sex life, genetic or biometric data, when related to a natural person."

3096 "The President also vetoed three articles of the bill, which dealt with the protection of personal data of access to information requests, the transfer of personal data between public authorities and private entities – such transfer will not be prohibited, but they will be based on other legal basis, and transparency on the use of data shared between public entities. Articles VII, VIII and IX of Article 52 were also vetoed, which provided for penalties for suspending and prohibiting – total or partial – the activities of processing and storing personal data in cases of violation of the legislation. In this way, only the penalties of warning, fine, blocking or elimination of data and disclosure of the infraction are provided." (MONTEIRO, Renato Leite. The new Brazilian General Data Protection Law – a detailed analysis. International Association of Privacy Professionals. Available at: <http://tinyurl.com/yycvm7yf>)

3097 The Interim Measure is a legal order prescribed by article 62 of the Brazilian Constitution. It has the same status of an ordinary law and can only be enacted by the President of Brazil in relevant and urgent cases. The Interim Measures are valid for up to 120 days and must be converted into law by the Congress during the same time span in order to retain its effectiveness. If Congress does not convert the measure into law, it becomes no longer valid.

to review by the Executive Branch in up to two years, with the possibility of being converted to a Federal Autarchy, similar to the current regulatory agencies in Brazil.

The law provides that the DPA will be structured in two different bodies: the Board of Directors, with five members, and also the National Council for Data Protection and Privacy, with 23 representatives of the government, civil society and private sector³⁰⁹⁸. It is also important to notice the provisions related to the interaction of the DPA with other regulatory agencies and the Central Bank of Brazil, in order to exercise its powers in specific sectors of the economy and government activities subject to regulation. The law also provides for a permanent communication forum among several entities of the public administration to more easily enable the regulatory, monitoring and punitive authority of the DPA.

There is much doubt on how the law will effectively be enforced, but the country is witnessing an intense movement by the major company's in order to comply with the GDPR once the grace period is over in August 2020. The law will come into force already with great challenges, especially as a growing number of IoT solutions (e.g. in smart cities) may face difficulties to obtain express consent from all affected individuals.

12.3.4 Institutional Architecture

Is there a digital platforms regulator?

Although the Brazilian Constitution recognises the role of State in the technological development³⁰⁹⁹, there is no specific digital platform regulator. Regulations affecting digital platforms are enacted by different regulatory authorities, responsible for telecommunications, data protection, consumer protection, e-government, competition and related policies, as seen above.

The main regulators with impact on digital platforms are: ANATEL (telecommunications); ANCINE (audio-visual); Senacon/MJ (consumer protection office at the Ministry of Justice); CADE (competition law) and the new National Data Protection Authority, described above. As to MERCOSUR, so far, its normative reach has not had significant impact on the digital value chains.³¹⁰⁰

3098 LEMOS, Ronaldo et al. A criação da Autoridade Nacional de Proteção de Dados pela MP n. 869/2018. <https://www.jota.info/opiniao-e-analise/artigos/a-criacao-da-autoridade-nacional-de-protecao-de-dados-pela-mp-no-869-2018-29122018>

3099 <http://english.tse.jus.br/arquivos/federal-constitution> Arts. 218 and 219

3100 Brazil is part of Mercosur, together with Argentina, Paraguay, Uruguay and Venezuela (currently suspended). This institutional set-up enhances cooperation in terms of science and technology and provides for an exchange of digital initiatives. The respective ministers of Science, Technology and Innovation have a forum to meet in the political level, whereas working sub-group n 1 provides a technical arena for communications. However, Mercosur's normative reach and impact in relation to internal regulations of the digital chain is rather limited, except indirectly, by means of the treaties related to consumer protection and intellectual property. See <https://www.mercosur.int/documento/organigrama-mercursos-completo/?wpdmdl=6589&refresh=5c49e805d94511548347397>

Among the offices of the central government with institutional responsibility over the digital policy in Brazil, a key actor is the Ministry of Science, Technology, Innovation and Communication. Other authorities include: the Federal Data Processing Service (SERPRO), a state owned enterprise (SOE) of information technology services in Brazil, created by Law 4.516 of 1st December 1964, and supervised by the Ministry of Economy³¹⁰¹. In the Ministry of Economy, there is also a Secretary of Digital Government, which promotes the E-Gov policy together with the Subsecretary of Digital Communication connected to the Secretary of Government in the President's office.

Which are the sector-specific regulators involved?

It is widely recognised that the two main sector specific regulators connected to digital issues are ANATEL (responsible for telecommunications) and ANCINE (responsible for audio-visual).

ANATEL, the National Regulatory Agency of Telecommunications, exercises an important aspect of the regulation of the digital chains, especially when it comes to internet access and supporting infrastructure. It was the first independent agency created and its regulatory powers were defined by the Law 9,472 of 16 July 1997, referred to in the first section.³¹⁰² It is characterised by its administrative independence, ensured by its financial autonomy and the mandate terms for its board of directors, composed by five members appointed by the President and approved by the Senate. The agency is supervised by the Ministry of Science, Technology, Innovation and Communication.

ANATEL has the authority to issue both general regulations in the form of Resolutions and individual decisions. Within its mandate, ANATEL has powers to regulate all telecommunication services, especially to enter into and manage concession contracts and to supervise the rendering of services; to grant and extinguish authorizations to render services; to set and revise tariffs for services; and to issue rules to manage telecommunication infrastructure.

Among recent decisions with impact on digital platforms, it is important to highlight the transition from analog Television to digital Television.³¹⁰³ Concerning "over-the-top services" (OTTs), ANATEL has recognised their economic effects in the market structure, especially in competition and has collaborated to the international framework initiatives.³¹⁰⁴ However, ANATEL has taken a cautious approach to any intervention, as its authority is limited to telecommunications services and it does not reach the so-called value added services, which are considered "users" of telecommunications. One recent

3101 See ADAMI, Mateus Piva et al. Tratamento de dados pessoais pela Administração Pública: Análise do SERPRO. In.: BRANCHER, Paulo Marcos Rodrigues; BEPPU, Ana Claudia. Proteção de Dados Pessoais no Brasil: uma nova visão a partir da Lei nº 13.709/2018, p. 193.

3102 <http://www.anatel.gov.br/legislacao/en/laws/608-law-9472>

3103 <http://www.anatel.gov.br/institucional/ultimas-noticiass/2118-primeira-agencia-reguladora-do-brasil-anatel-comemorou-21-anos-de-atuacao>

3104 http://www.anatel.gov.br/Portal/documentos/sala_imprensa/10-5-2018--19h12min29s-2018_Apresentacao_SG3_Resultados.pdf

and controversial exception was an injunction issued against Fox Channels, prohibiting the streaming of the so-called linear content (i.e. content equivalent to TV channels) Over the Top because it could infringe certain regulations related to pay TV.³¹⁰⁵ This case is still ongoing.

Regarding competition law enforcement, before the Law 12,529/2012, ANATEL was responsible for investigating anticompetitive conducts in the telecommunications sector and also had authority to provide subsidies to the analysis of the competitive aspects of merger and acquisitions before CADE's Tribunal – i.e. there was some overlapping competences between ANATEL and the competition authority. The current competition law concentrated all antitrust powers on CADE and ANATEL only provides industry specific technical information. Therefore, all competition enforcement related to telecommunications is carried out by CADE.

ANCINE is the national regulator for the audio-visual sector. Created by the Interim Measure n 2.228-1, of 6th September 2001 (same rank as Law)³¹⁰⁶, the agency is composed by four independent directors appointed by the President and approved by the Senate (Art. 8). The agency is currently supervised by the Ministry of Citizenship. ANCINE's main regulatory authority is related to the increase of local content and content made by independent producers and the strengthening of national programmers. This is done through the establishment and monitoring of quotas in special prime times and the conferral of financial incentives to producers.³¹⁰⁷ While its primary focus is audio-visual products, ANCINE also has regulatory functions regarding the content of digital broadcasting, especially concerning pay TV. According to Law 12,485, of 12 September 2011,³¹⁰⁸ both ANCINE and ANATEL have authority to regulate pay TV, which requires institutional cooperation in this field. There is still debate on whether ANCINE has powers to regulate video streaming over the internet, as video on demand platforms and other non-linear ones are not included in the pay TV regulations.³¹⁰⁹ ANCINE has asserted its power to regulate the registration and fees of audio-visual advertisement over the internet.³¹¹⁰ Moreover, ANCINE has taken concrete actions to address issues related to taxation of those video-on-demand providers.³¹¹¹

The Law 13,848, of 25 June 2019³¹¹² makes it clear that there should be close cooperation and exchange of experiences between regulatory agencies and competition authorities

3105 ANATEL Proceedings ° 53500.056473/2018-24 against Fox Latin America and Proceedings n° 53500.057279/2018-66 against Topsports Ventures Ltda. See also Public Consultation n. 24-2019 at <https://sistemas.anatel.gov.br/SACP/Contribuicoes/TextoConsulta.asp?CodProcesso=C2247&Tipo=1&Opcao=andamento>

3106 http://www.planalto.gov.br/ccivil_03/MPV/2228-1.htm

3107 <https://www.ancine.gov.br/pt-br/faq-lei-da-tv-paga>

3108 http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2011/Lei/L12485.htm

3109 See <https://www.ancine.gov.br/sites/default/files/Vod%20Documento%20Público%20Final%20v3.pdf>

3110 See <https://www.ancine.gov.br/pt-br/sala-imprensa/noticias/ancine-prorroga-entrada-em-vig-ncia-da-norma-que-obriga-registro-e>

3111 See <http://teletime.com.br/27/11/2018/ancine-abre-processo-e-consulta-sobre-cobranca-da-condecine-em-vod-pelas-regras-atuais/>

3112 Available at http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/lei/L13848.htm

in Brazil to ensure competition advocacy and enforcement of competition legislation in regulated markets. Regulatory agencies must monitor and report market practices to aid competition authorities in their task. In turn, CADE must report to the agencies without delay any decisions it takes on those markets. Moreover, competition authorities may request technical opinions on the agencies' subject matter. Law 13,848/2019 reinforces the application of competition law to regulated sectors both in merger control and conducts. Most importantly, art. 30 provides that regulatory agencies and competition authorities may constitute committees to exchange information and experiences and to set common guidance and procedures and allow for reciprocal consultation in regulated sectors. In practice, such cooperation has always taken place, especially in relation to cases in the telecommunication sector.

Financial Sector

The Central Bank is monitoring the progress of cryptocurrencies³¹¹³ and the Securities Commission (CVM) regulated the indirect investment in those cryptocurrencies.³¹¹⁴ National Monetary Council Resolution 4.656 of April 2018 allowed *fintechs* to operate in loan markets without the intermediation of a traditional bank. The Central Bank, together with the Ministry of Economy and the Insurance Regulator (Susep), have commenced a coordinated task force to implement a model of *regulatory sandbox* in Brazil. This initiative would cover the use of innovative technologies (distributed ledger technology, blockchain, robot-advisors and artificial intelligence) in financial services. Among the possible instruments, one can mention temporary authorizations, justified and exceptional exemption from the compliance with certain rules, and requirement of different criteria, limits and periods for new entrants using innovative technologies. This would ensure the necessary flexibility to cope with the constant digital innovation in financial services.³¹¹⁵

The Foreign Revenue Office (RFB) is in conversation with associations of cryptocurrency companies to discuss ways to tax their activities. CADE and the Central Bank have been working in close cooperation, after a decade of relative friction over the powers of competition enforcement in financial services. Since 2018, there is a Memorandum of Understanding between them that sets out the framework for cooperation and a Joint Normative Act n. 1/2018.³¹¹⁶ Both authorities will have a saying in merger control involving the financial sector and merger approval will depend on the consent of both authorities. In other words, in the rare occasions where the Central Bank identifies relevant and imminent risks to the stability of the financial system, the Central Bank will convey this risk to CADE, which will approve the merger. Most importantly, according to art. 6 of the Joint Normative Act, the Central Bank will immediately notify CADE of the prudential risks in all or in specific relevant markets related to the case. Then, CADE's analysis will

3113 <https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=31379>

3114 <http://www.cvm.gov.br/export/sites/cvm/legislacao/oficios-circulares/sin/anexos/oc-sin-1118.pdf>

3115 <http://www.cvm.gov.br/noticias/arquivos/2019/20190613-1.html>

3116 https://www.bcb.gov.br/conteudo/home-ptbr/TextosApresentacoes/Ato%20normativo%20conjunto%205_12_2018%20limpa.pdf

lead to the approval without restrictions of the merger. In this case, CADE's justification will incorporate Central Bank's reasoning to base the unconditional approval on efficiency and economic development.

When it comes to anticompetitive conducts, CADE takes the lead and will use information provided by the Central Bank to improve the technical consistency of its decisions.³¹¹⁷

What is the role of the competition authorities?

CADE (Administrative Council for Economic defence) is the Brazilian Competition Authority. According to Law n. 12.529/2011, CADE has two main assignments: pre-merger review and investigation of anticompetitive conducts. Also, in the so-called Brazilian System of Competition Defence, the Secretariat for Competition Advocacy and Competitiveness of the Ministry of Economy ("SACC", in the Portuguese acronym) takes the primary role of competition advocacy, championing pro-competition regulatory actions within the government, although CADE may also have specific advocacy initiatives.

CADE has a broad mandate that applies horizontally across sectors, including all digital platforms. On one hand, CADE will review any merger related to digital platforms that meet the legal thresholds (turnover requirements), having authority to approve or block specific mergers. The power to require the notification of any merger and acquisition up to one year after the conclusion, regardless of the parties' sales or turnover, is established in Art. 88 (7) of Law 12.529. According to CADE, "this possibility may be applied to mergers in the digital economy, in case where companies involved have no sales and no turnover, or when these values are very low."³¹¹⁸

Within the merger review mandate, CADE may impose structural or behavioural remedies on transactions in the digital economy in order to address competitive concerns. On the other hand, CADE has authority to investigate and punish digital platforms that violate the competition law. Investigations may address collusive or unilateral practices and may lead to fines, behavioural obligations or even exceptional structural measures of divestment. CADE has identified and sanctioned collusion through computer automation as a possible way of coordinating behaviour and reported the use of techniques such data mining and screening techniques for the detection of cartels.³¹¹⁹

CADE has not adopted toolkits, guidelines or specific policies for the digital economy. The annex of Resolution CADE 20/99 – which is 20 years old – is still referred to by CADE as a guide to the analysis of vertical restrictions, including in the digital market, but CADE makes use of academic literature and past cases to identify the particularities of those markets.³¹²⁰ Given the extensive experience in the past two decades, it would be reasonable to expect CADE to review and update these guidelines more broadly, even if not restricted to cases in the digital economy.

3117 <https://www.bcb.gov.br/detalhenoticia/231/noticia>

3118 Responses to Questionnaire submitted by CADE to the BRICS Centre in July 2019.

3119 Responses to Questionnaire submitted by CADE to the BRICS Centre in July 2019.

3120 Responses to Questionnaire submitted by CADE to the BRICS Centre in July 2019.

Regarding competition advocacy in digital markets, both CADE and SACC have played an important role in promoting competition. CADE has carried out research to deepen the knowledge about the effects of intervention in those markets and published three studies regarding urban transport regulation and its impacts on new mobility apps like Uber.³¹²¹ SACC, for its turn, has an active role in lawsuits that may tackle questions regarding competition issues.

Digital markets: Mergers

CADE has evaluated important cases regarding digital platforms in the last fifteen years, in various economic sectors. Table 14 below summarises CADE's approach to mergers related or connected to digital markets from 2004 to 2018:

Table 14 – Mergers Analysed by CADE in Digital Markets [2004-2018]

Year	# of Mergers	Blocked	Cleared*	Cleared with Restrictions
2004	23	0	20	3
2005	18	0	18	0
2006	8	0	8	0
2007	11	0	10	0
2008	27	0	26	1
2009	29	0	28	1
2010	35	0	34	1
2011	16	0	16	0
2012	16	0	15	1
2013	8	0	7	1
2014	10	0	8	2
2015	2	0	2	0
2016	2	0	2	0
2017	4	1	2	1
2018	9	0	9	0
Total	218	1	205	11
Rate%	100%	0.5%	94.0%	5.0%

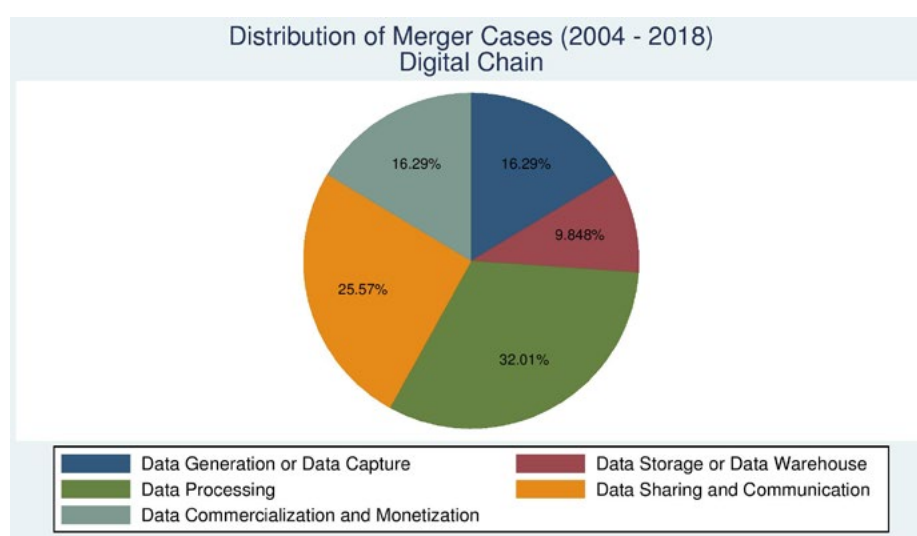
Source: Brazil Database – BRICS Centre, based on decisions obtained from CADE's website (www.cade.gov.br) * including cases in which CADE declined jurisdiction to evaluate the merger or parties withdrew notification

3121 See, for example, the most recent one: "Competitive Effects of Sharing Economy in Brazil: Did Uber's entrance affect the taxi apps market between 2014 and 2016?". Full study (in Portuguese) available at: <http://www.cade.gov.br/aceso-a-informacao/publicacoes-institucionais/dee-publicacoes-anexos/documento-de-trabalho-001-2018-uber.pdf> . A summary of the study in English is available at: <http://en.cade.gov.br/cade-analyzes-the-competitive-effects-of-the-uber2019s-entry-in-the-market-especially-over-taxi-apps>

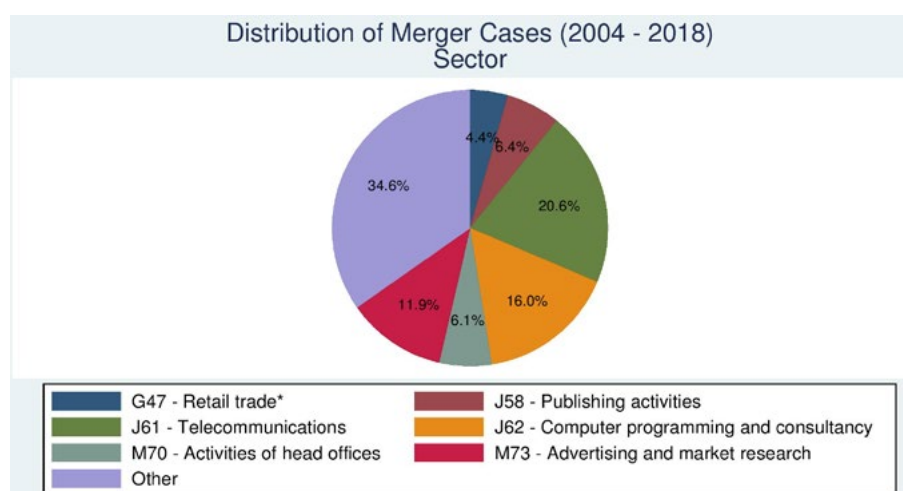
In the past 15 years, 94% of the decisions analysed in the database were cleared without restrictions. This figure does not differ much from the one observed in traditional markets, which has been around 97% in the last years that followed the enactment of the Law 12.259. However, one should be cautious with that comparison, since mergers in digital markets generally presents higher concentration ratios, clear dominant position, and concerns about entry barriers due to network externalities. For that reason, it was indeed expected a lower proportion of mergers cleared without restrictions.

The cases spanned throughout different levels of the digital chain and several sectors, with some concentration in telecommunications, computer programming and advertising, as shown in figures 3 and 4.

Figure 3



Source: Brazil Database – BRICS Centre



Source: Brazil Database – BRICS Centre

As indicated in Table 14 above, 11 (eleven) decisions involved restrictions ranging from the exclusion of non-competition clauses to the assumption of behavioural and structural commitments. In the period between 2004-2008, CADE cleared with restrictions certain mergers related to the provision of internet connectivity.³¹²² This may indicate special concern with infrastructure access, which justified a more active approach also in conducts, as will be seen below.

One of the most recent and relevant cases for digital platforms was the merger between Itaú (larges Brazilian private bank) and XP Investimentos, the largest Brazilian online platform for investments³¹²³. The merger was cleared with behavioural restrictions, in a split decision taken by the Council. The majority understood that the merger could be approved if some vertical concerns were neutralized by the remedies negotiated with the parties. However, it is interesting to notice the dissenting opinion of Commissioner Schmidt in the case. According to her view, XP Investimentos could be considered a maverick in the market for investments and its merger with one of the largest Brazilian banks would eliminate an aggressive and innovative player in the market. In her views, it is better to block a risky merger that can be filed again in the future than to clear a risky merger that cannot be undone in the future – clearly favouring type I errors (false positives) instead of type II errors (false negatives) in the context of digital markets. Even though this position did not prevail, it shows a growing concern with acquisitions of aggressive start-ups by incumbents.

Similar considerations were made in the case in which Naspers increased its share ownership in DeliveryHero³¹²⁴. The merger was cleared with no restrictions, as CADE found that the market for food delivery apps was very dynamic and took a cautious approach to avoid undue intervention (i.e. false positives). However, the General-Superintendence expressed concerns regarding Naspers' strategy, because it had acquired more than 10 companies in Brazil since 2013. According to the GS, such behaviour should be closely monitored in the future, because it may pose a barrier to entry. If every start-up that starts to have success is acquired, it is not likely that any of them will have the power to fully develop and become an effective rival in the market. Even though the merger was cleared in the end, the decision shows growing concern with potential competition and the role of start-ups in pressuring incumbents.

Another example of a merger relevant to digital markets is the acquisition of Time Warner by AT&T. CADE approved the transaction with the restriction of the signature of an Agreement for Concentration Control (i.e. negotiated remedies).³¹²⁵ In Brazil, the acquisition basically resulted in a vertical relation between content and channel licensing activities to paid TV operators of the Time Warner Group (programmer) and satellite

3122 E.g. AC 08012.004818/2000-82 Parties: Terra Networks Brasil and Internet Digital Boulevard; AC 08012.006253/1999-46 Parties: Telefônica Interactiva and RBS Administração; AC 08012.006688/2001-01 Parties: CTBC Celular and Ntete Site; AC 53500.022515/2006 TNL Participações and Way TV Belo Horizonte

3123 Merger n. 08700.004431/2017-16. The merger was also cleared with additional restrictions by the Brazilian Central Bank.

3124 Merger n. 08700.007262/2017-76.

3125 Vote of Commissioner Gilvandro Vasconcelos on Proceedings 08700.001390/2017-14.

pay-TV supplied by Sky Brasil (packaging and distribution), company controlled by AT&T. Time Warner was found to have high market power in the relevant markets of content and channel programming and licensing in Brazil. In Brazil, TW also offered digital video services through several platforms such as TV Everywhere, and others. In the pay-TV market for distribution, there is high market concentration, with Sky and the competitor Claro/NET as clear leaders.

The vertical integration could result in alignment of incentives that would harm competitors in both markets by means of exchange of sensitive information and more favourable negotiation conditions (i.e. discriminatory practices). CADE's concerns were the incentives and capacity of Sky to discriminate other programmers that were rival to Time Warner. Moreover, CADE considered there was the possibility of market foreclosure in the pay-TV market through licensing of Time Warner's content to Sky in favourable terms, harming Sky's rivals.

The Agreement signed with CADE provides obligations that eliminate rival exclusion and discrimination in the markets of pay-TV programming and distribution. AT&T should keep Sky Brasil and Time Warner programmers as separate legal entities, with their own governance and administration structures. The exchange of sensitive information or information that could potentially result in discrimination is forbidden. AT&T must ensure that Time Warner's content offers to packaging and pay-TV distribution companies will be done on a non-discriminatory basis. Sky Brasil should not impose conditions to distribute channels of programmers not related to AT&T/TW. This required the adjustment of current contracts and established an arbitration procedure to evaluate potential breaches of the commitments undertaken by AT&T/TW. Commissioner Cristiane Schmidt also included in her Concurring Opinion that the regulators should promote changes in the regulatory framework to ensure competition with over the top providers (OTTs).³¹²⁶

A merger in the same market, whereby The Walt Disney Company acquired the Twenty-First Century Fox, was scrutinised by CADE in 2019. The merger was approved in Brazil with structural remedies, partially due to the interpretation of low rivalry coming from OTT services, consistent with the previous decision on the AT&T-Time Warner case.³¹²⁷ Among the remedies, Disney would have to sell the Fox Sports channel to another company, including broadcasting rights and contracts with pay-TV operators. Disney must abstain from contracting or reacquiring those broadcasting rights and must allow the buyer the option to licence the Fox brand without a charge.

It is interesting to notice that CADE has blocked four mergers between 2017 and 2018, the largest number in any 2-year period.³¹²⁸ The cases blocked by CADE were in tradi

3126 Concurring Opinion Commissioner Schmidt Proceedings 08700.001390/2017-14.

3127 Merger Control Agreement on AC 2019 [08700.004494/2018-53](#) Merger Control Agreement Parties: The Walt Disney Company Twenty-First Century Fox, Inc.

3128 The blocked mergers were: Merger n. 08700.002155/2017-51 (Companhia Ultragas S.A. and Liquegás Distribuidora S.A.), Merger n. 08700.006185/2016-56 (Estácio Participações S.A. and Kroton Educacional S.A.), Merger n. 08700.006444/2016-49 (Alesat Combustíveis S.A. and Ipiranga Produtos de Petróleo S.A.) and Merger n. 08700.007553/2016-83 (Frigorífico Mata Boi S/A and JBJ Agropecuária Ltda.)

tional markets, but one of them had an important digital component. The attempted merger between Kroton and Estacio involved the two leading private education providers in Brazil.³¹²⁹ The digital aspect of the merger was related to concentration in the distance-based education market. Although concentration in the on-site education market provided the rationale for the blocking decision, the level of concentration in online provision of educational services played a key role in the reasoning, as well as in some other CADE precedents cleared with restrictions.

Despite these interventions, the vast majority of mergers in the digital economy was cleared without restrictions, as it also happens in more traditional sectors. CADE has indicated that imposing a different market structure might be counterproductive and inefficient, since “winner takes most” strategies is the equilibrium in several markets.³¹³⁰ Besides, CADE has recognised the risks of a restrictive policy regarding mergers and acquisitions: it might discourage innovation as many new companies seek to be acquired by larger players.³¹³¹ Such a careful approach by the Competition Authority may represent a trend in the merger control in Brazil, especially in cases related to “new markets” with specially dynamic behaviour. Yet, some concerns with potential competition and elimination of mavericks are appearing in some cases, as illustrated above.

Digital markets: exclusionary and exploitative practices

Brazilian Competition Legislation (Law 12,529/2011) provides several tools for competition enforcement in digital markets, when it comes to abuse of dominant position and exclusionary practices. For example, the law explicitly lists among the possible anticompetitive conducts the prevention of rival's access to technology and the abuse of industrial or intellectual property rights (art 36, §3, V and XIX).

From the database of Brazilian cases, 18 (eighteen) antitrust investigations involving different aspects of the digital markets were identified and analysed:

Table 15 – Antitrust Investigations in Digital Markets [2014-2018]

Year	# of Antitrust Investigations	Year	# of Antitrust Investigations	Year	# of Antitrust Investigations
2004	1	2010	1	2015	-
2005	-	2011	-	2016	1
2006	3	2012	2	2017	1
2007	1	2013	1	2018	5
2008	-	2014	-	Total	18
2009	2				

Source: Brazil Database – BRICS Centre

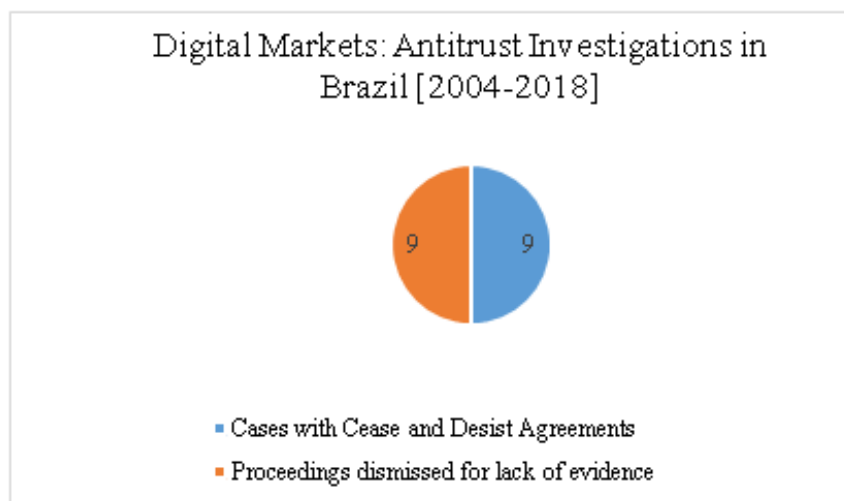
3129 AC 08700.006185/2016-56 supra.

3130 Responses to Questionnaire submitted by CADE to the BRICS Centre in July 2019.

3131 Responses to Questionnaire submitted by CADE to the BRICS Centre in July 2019.

Half of those cases resulted in settlements with several of the parties involved – i.e. Cease and Desist Agreements. The only case of cartel with settlements (in electronic credit for pre-paid mobile phones) is still pending in relation to other parties.³¹³² The other half had their proceedings dismissed by lack of evidence, generally following a cautious approach to dynamic markets, as shown below:

Figure 5



Source: Brazil Database – BRICS Centre

Cautious Approach: Zero Rating and Google cases

An example of the cautious approach taken by CADE is the zero rating case. At the request of the Federal Prosecutor's Office, CADE initiated an investigation against four major telecom companies – Claro, Tim, Oi and Vivo – regarding allegedly anticompetitive conducts due to the practice known as zero-rating (i.e. not charging data to access certain applications).³¹³³ Examples of the practices were offers of free and unlimited access to Facebook, Twitter, WhatsApp, music apps, or free access to certain *apps* sponsored by banks. The relevant markets potentially affected were (i) market for mobile cellular services, with four players with similar sizes; and (ii) market for applications and content, a dynamic market experiencing intense changes. CADE's General Superintendence (GS) considered that there was no exclusive dealing and that those conducts were justified by business reasons. Moreover, the GS evaluated that some of the business offers could actually foster competition and innovation, by allowing consumers to use their data plans to access other websites. The proceedings were dismissed, acknowledging that the markets were very dynamic and that there was no proof of anticompetitive effects.

The three cases brought against Google have also confirmed this trend. In all the proceedings below, CADE concluded that there was no evidence of breach of competition law and acknowledged the intense innovation in the markets and insufficient proof of effects in the market.

³¹³² Administrative Proceedings 08012.002812/2010-42

³¹³³ Preliminary Proceedings nº 08700.004314/2016-71.

First, CADE investigated alleged anticompetitive restrictions in the contracts of Google's online advertising platform, known as *AdWords*. After a long investigation with publicity agencies and advertisers, it concluded that most of the clauses in Google's terms and conditions were not capable of restricting *multihoming*. According to the GS, clauses that had a restrictive potential could not significantly affect competition in Brazil. The focus of the GS was on the lack of actual effects caused by the conduct. The case was dismissed by CADE's Tribunal on the same grounds.³¹³⁴

CADE also analysed scraping practices by Google of relevant competitive content held by rival's specific search websites, to use it in Google's own specific search services. It recognised that such practices by dominant companies should be carefully scrutinised. CADE's GS acknowledged that review gathering tools were a relevant asset in the market, but did not find a violation. Indeed, there was not enough evidence of the systematic presentation by Google of content collected from other websites. Also, the conduct would have been irrational as it could not have affected the Brazilian market.³¹³⁵ Although the case was ultimately dismissed, at the request of a commissioner, CADE decided to open a new investigation regarding Google's conduct on the reproduction of news from alleged competitors on Google News.³¹³⁶

Finally, CADE investigated if Google would be unduly favouring its own specific services within the organic results, such as *Google Shopping*, to the detriment of price comparison sites, such as the local competitor Buscapé, positioning itself in a more privileged area of the webpage (among the sponsored links). The analysis did not lead to a finding of violation. Indeed, after an extensive analysis, CADE did not identify a causal relationship between Google's conduct and any harm to competition or even to competitors. CADE also understood that *Google Shopping's* evolution throughout time showed some genuine features of innovation directed to fulfil consumers' and retailers' needs. In this context, the GS found no evidence of an antitrust offence.³¹³⁷ On 26 June 2019, the Tribunal dismissed the case in a split decision that confirmed the GS opinion.

Three commissioners found that Google violated competition law, supporting their decision on the defendant's dominant position (mainly due to network externalities and consumer bias) and potential exclusionary effects of the conduct, very much aligned with the European Commission decision on the same case³¹³⁸. One of them suggested a fine of BRL 32 million (USD 8.35 million). The other three commissioners, including the Reporting Commissioner and the President, concluded that there was no sufficient evidence of harm, even after seven years since Google Shopping had been in place, dismissing the allegation of potential effects. Moreover, they reckoned that the innovation embedded in Google Shopping created value to users, by improving matching and consumer experience. The inclination of the dissent Commissioners to vote for Google's condemnation may reveal their disposition to run the risk of type I errors (false posi-

3134 Proceedings 08700.005694/2013-19.

3135 Proceedings 08700.009082/2013-03.

3136 Investigation IA 08700.003498/2019-03.

3137 Proceedings 08012.010483/2011-94.

3138 European Commission decision of 27 June 2017 in Case AT.39740 – Google Search (Shopping).

tives) in very dynamic and uncertain markets. Still, the prevailing dismissal decision was consistent with precedents in digital markets, where in-depth scrutiny sides with greater caution and more willingness to incur in potential false negatives than false positives when dealing with innovative markets.

In any event, the investigation of digital platforms' conducts seems to be as dynamic as their innovative environment. The General Superintendence has recently opened preparatory proceedings against Google for anticompetitive practices related to Android, in mobile phone and tablets, similar to those investigated and sanctioned by the European Commission.³¹³⁹

Intervention through Settlement Agreements

The fact that CADE has been generally cautious regarding cases in digital markets has not deterred the authority from intervening in certain cases, especially through Settlement agreements (i.e. Cease and Desist Agreements), an instrument that is provided for in art. 85 of Law 12,529/2011. Indeed, CADE has used settlements to stop alleged anticompetitive conducts and establish non-discriminatory behaviour. It is not an overstatement to say that some of these settlements reshaped markets, as described below.

Telecom settlements

In the early 2000s, Telesp, Brasil Telecom and Oi, three incumbent telecommunication providers, were accused of price discrimination in the offer of wholesale access to competitors in the context of different bidding procedures for data communication services by government agencies, generating an alleged price squeeze. Telesp negotiated Cease-and-Desist Agreements, accepting to provide non-discriminatory treatment in the wholesale market of leased lines.³¹⁴⁰ The other two operators soon followed with similar settlements. Together, these settlements changed the leased line market, which was later regulated by ANATEL.³¹⁴¹

Between 2010 and 2012, cases related to discrimination in the market of Internet Service Providers were also settled.³¹⁴² Telecom companies were allegedly directing their clients of broadband internet connection services to a preferred internet authentication provider. According to the investigation, this was done by unequally displaying providers' offers and discriminatory treatment via call-center. The Cease-and-Desist Agreements provided that the telecom companies providing internet broadband connection would implement to their clients an Online Platform, which would pass on information concerning all other internet authentication providers. These cases may be seen in the

3139 <http://agenciabrasil.ebc.com.br/geral/noticia/2019-06/cade-investiga-pratica-anticompetitiva-do-google>

3140 Administrative Proceedings n. PA 53500.002284/2001, 53500.002286/2001 and 53500.005770/2002 Defendant: Telesp-Telecomunicações de São Paulo S.A.

3141 See ANATEL Resolution 402/2005

3142 Request 08700.005109/2010-38 by Telecomunicações de São Paulo – Telesp. Settlement Agreement in Administrative Proceedings 53500.002336/2003 Defendants: Telemar, Brasil Telecom and BRT, together (OI).

same trend as the mergers analysed above: the authority wanted to ensure competition in the infrastructure supporting internet access.

Online Travel Booking Agencies

CADE also settled an investigation about price parity clauses imposed by online travel agencies (OTAs), requiring the main players in the Brazilian market (Booking, Expedia and Decolar) to narrow down their clauses. The proceedings initiated after a complaint filed by the Brazil Hotel Operators Forum ("FOHB"), arguing that the OTAs were perpetrating anticompetitive conducts in the market for online booking services for hotels, due to the imposition of clauses known as most-favoured nation ("MFN") (also known as wide price parity clauses) to hotels that wished to be listed on the Respondents' websites.

CADE considered that the imposition of wide price parity clauses could negatively affect the incentives for competition among OTAs, as well as increase barriers to entry. Decolar.com, Expedia.com and Booking.com settled with CADE.³¹⁴³ According to the settlement agreements, the OTAs agreed to stop using wide price parity clauses, refraining from imposing to their suppliers of accommodation obligations regarding price parity to other OTAs and to off-line booking channels. However, in order to avoid free riding from hotels, CADE accepted narrow price parity clauses, allowing harmonisation of prices in limited situations: (i) in relation to general offers in the hotel website; (ii) in relation to direct hotel offers in meta-search websites and (iii) offline reservations that are publicised online. CADE also recognised that OTAs are a new digital phenomenon and, therefore, the authority still had limited experience. In this context, CADE's prohibition of wide parity clauses was limited to a period of three years, during which the authority will monitor the players' practices and the market's technological development.

Payment cards

CADE has been quite active in the payment card industry since 2009, when it investigated the exclusive dealing between Visa (platform owner) and Visanet (acquirer responsible for capturing and processing transactions). The defendants settled the case, accepting to drop the exclusive agreement and committing to implement a multi-brand acquiring system, whereby Visanet would capture transactions of other payment brands and Visa would license other acquirers.³¹⁴⁴ This settlement reshaped the market of payment cards, together with new self-regulation established by the industry association and later regulations from the Brazilian Central Bank.

More recently, in 2015, CADE's General Superintendence (GS) initiated proceedings against Banco do Brasil, Bradesco and Itau to investigate alleged discrimination and refusal to contract with independent acquirers (firms responsible for capturing and pro-

³¹⁴³ Settlement Agreements on Proceedings 08700.005679/2016-13 Defendants: Expedia do Brasil Agência de Viagens e Turismo Ltda., Decolar.com Ltda. and Booking.com Brasil Serviços de Reserva de Hotéis Ltda.

³¹⁴⁴ Administrative Proceedings 08012.005328/2009-31.

cessing transactions) that were rivals of their own controlled acquirers (Cielo and Rede). In parallel, CADE also investigated these banks and their local payment card brands (i.e. Hiper and Elo) for allegedly discrimination against independent acquirers. These investigations resulted in settlements with all the companies, providing for broad non-discrimination obligations and specific requirements of interoperability.³¹⁴⁵

Partial conclusion

The analysis of the decisions above shows that CADE has adopted a cautious approach when reaching final decisions in digital markets. Two reasons might be behind this cautious approach. First, CADE considers that, in those markets, it is more complex to demonstrate effects and causal links between the conduct and the impact in the market. In other words, there are multiple factors affecting the evolution of the market. Although the legislation is comprehensive enough to allow for intervention, based on potential effects, CADE has based its investigations of abuse of dominance on a careful analysis of effects and justifications. Second, there is a concern with unduly affecting innovation processes, which reinforces risk aversion to type I errors (false positives). This is particularly important in Brazil, which generally imports technology and is trying to create an environment that can also lead to producing new technologies (at least on the margins).

Nonetheless, similar to cases of unilateral conducts in traditional markets, CADE has been active with the use of settlement agreements to stop alleged anticompetitive conducts without full-fledged investigations. One should note, however, that some of the settlements in digital markets did not include pecuniary contribution (e.g. Online Travel Booking Agencies), which signals that the authority was less certain about the occurrence of an antitrust offence; but was concerned to move the conduct to a safe harbour. This may be an interesting approach to the extent that it streamlines solutions with relevant impacts in complex markets in which it may be difficult to prove an infringement.

What is the role of Courts in enforcing competition law and regulatory norms?

Federal courts in Brazil have the power to review administrative decisions by federal authorities and to issue injunctions against those decisions.

Appeals are filed before five Regional Courts of Appeals (TRF), and, in certain cases, further appeals can be made to the Superior Court of Justice (STJ) or the Supreme Federal Court (STF). Therefore, all the decisions taken by regulatory agencies such as ANATEL, ANCINE, CADE and other federal authorities are subject to judicial review by generalist federal courts. While this involves an assessment of the legality of the act and of the proportionality of the decision, some deference is due to the administrative and technical expertise of the agencies. Courts have the power to revoke administrative acts, such as general resolutions and individual orders containing the regulation of market structure, prices and other access regulation. Courts may also revert adjudicatory decisions, such as the ones that impose sanctions for anticompetitive conducts. Courts should take into

³¹⁴⁵ Settlement Agreements on Proceedings 08700.001860/2016-51 and 08700.001861/2016-03.

account the practical circumstances, obstacles and difficulties faced by the administrative entity taking the decision.³¹⁴⁶

It is important to emphasise that CADE has been prevailing in a significant portion of the court rulings. Generally, courts have been deferential to CADE's technical findings. In 2018, 61 of its decisions were challenged in courts, down from 79 in 2017.³¹⁴⁷ Courts have confirmed CADE's decisions in 73.5% of the cases, according to CADE's reports. CADE has used this success rate to calculate contributions in judicial settlements.³¹⁴⁸ However, some important conduct cases have been reverted by the courts. In the Medical and Industrial Gas Cartel case, for example, White Martins obtained the annulment of the decision of fines, the largest ever imposed by CADE.³¹⁴⁹ Judiciary usually observes the regularity and consistency of proceedings and the collection of evidence.

Overall, decisions about digital markets have not been challenged in courts, as there has not been large convictions and most merger and conduct cases leading to remedies have been settled directly at the administrative level.

Interaction between competition law and IP rights

Intellectual Property Rights do not benefit from an explicit exemption regime from competition law. According to Law 12,529, of 30 November 2011 (Competition Law) compulsory licensing of IP rights is one of the measures that can be imposed to approve a merger (art. 61, §2, V). It can also be imposed as a possible sanction against infringements of competition law related to the usage of IP (art. 38, IV, a). This is in line with the TRIPS agreement.³¹⁵⁰

Concerning conducts, the following are considered possible breaches of the Competition Law: impairment or prevention of the exploration of IP rights or technologies (art. 36, §3, XIV); exercise or exploration of IP rights, trademarks or technologies in an abusive manner (art. 36, §3, XIX).

In this regard, CADE has been analysing cases of abuse of IP rights, especially concerning sham litigation in the pharmaceutical sector. CADE has previously condemned the practice by companies of omitting from the courts the exact scope of INPI patent requests, which lead judges to a mistaken analysis when granting provisional measures.³¹⁵¹ More recently, CADE has taken a step back, setting out limits for the intervention in the area.³¹⁵² For example, CADE recognized that the registration of certain IP rights might be

3146 See, in this regard, Law 13,655, of 25 April 2018.

3147 CADE's Annual Report 2018, p. 17 available at: <http://www.cade.gov.br/acesso-a-informacao/publicacoes-institucionais/anoario.pdf>

3148 See Judicial Settlement in Administrative Proceedings 08012.003805/2004-10 against AMBEV.

3149 Administrative Proceedings 08012.009888/2003-70 against White Martins and others.

3150 See arts 8.2 and 40.2 of TRIPS.

3151 Available at <http://en.cade.gov.br/press-releases/eli-lilly-fined-in-brl-36-6-million-for-sham-litigation>

3152 CASCAO, Luis and GALVAO, Luiz "Reshuffled CADE adopts new approaches to IP Cases" November 2018 <https://www.internationallawoffice.com/Newsletters/Competition-Antitrust/Brazil/BMA-Barbosa-Mssnich-Arago/Reshuffled-CADE-adopts-new-approach-for-ip-cases#>

controversial but, if not clearly abusive, shall not lead to a finding of sham litigation.³¹⁵³ Moreover, in a recent precedent addressing a dispute related to alleged abuse of car-makers regarding IP rights over auto-parts in aftermarkets, CADE considered that registering industrial design for auto-parts in the aftermarket and bringing claims against breaches is not anticompetitive per se.³¹⁵⁴ In sum, CADE considered that, as anticompetitive effects are inherent in the granting of IP rights by Brazilian legislation, its jurisdiction was restricted to cases of clear abuse.³¹⁵⁵

While there are no explicit guidelines related to intellectual property, there are references to IP rights in CADE's Resolution n 2/2012, which sets out requirements for the notification of mergers. Parties notifying a merger are required to disclose patents and other IP rights (IX.3 and IX.4) and patent licensing agreements (IX.18) that may affect entry in the relevant markets.

In addition to these points, the Guidelines for the Analysis of Horizontal Mergers, published in July 2016,³¹⁵⁶ place IP ownership among the "exclusive advantages of companies" for the analysis of entry barriers.³¹⁵⁷ A section of the Guidelines refers to specificities of technology markets and recognises that traditional methods may not capture the anticompetitive effects of transactions in research and development markets.³¹⁵⁸ The Guidelines also allow for an analysis based on the acquisition of a *maverick* (disruptive rivals) and on potential competition due to pending IP rights or new product registrations.³¹⁵⁹

The recent Guidelines of Structural Remedies in merger control, published in October 2018, list the transfer of IP rights among the structural remedies that can be imposed by CADE or agreed by the parties to a notified transaction.³¹⁶⁰ IP rights are not only a key component of the assets to constitute a "viable business" to be transferred to third parties, but may also be a measure on its own.³¹⁶¹ Compulsory licensing should be done in a transparent and non-discriminatory manner.³¹⁶²

3153 Administrative Proceedings 08012.006377/2010-25, Defendants: Lundbeck Brasil Ltda. e H. Lundbeck A/S; Decision: 3rd October 2018; Reporting Commissioner: Pollyana Vilanova.

3154 Administrative Proceedings 08012.002673/2007-51. Defendants: Volkswagen do Brasil Indústria de Veículos Automotivos Ltda., Fiat Automóveis S/A e Ford Motor Company Brasil Ltda. Decision: 14th March 2018; Reporting Commissioner: Paulo Burnier; Prevailing Dissenting Opinion Commissioner: Maurício Bandeira Maia.

3155 In this regard, see WIPO "The Interface of IP Enforcement and Competition Law: Contributions prepared by Brazil" https://www.wipo.int/edocs/mdocs/enforcement/en/wipo_ace_13/wipo_ace_13_5.pdf

3156 Available at http://www.cade.gov.br/aceso-a-informacao/publicacoes-institucionais/guias_do_Cade/guia-para-analise-de-atos-de-concentracao-horizontal.pdf

3157 p. 28.

3158 p. 22.

3159 p. 50-51.

3160 p. 11. Available at http://www.cade.gov.br/aceso-a-informacao/publicacoes-institucionais/guias_do_Cade/copy_of_GuiaRemdios.pdf

3161 p 20; 22.

3162 p 40.

Are there any sectors exempted from competition law enforcement?

Competition law in Brazil does not include any *a priori* sectorial exclusions or exemptions.³¹⁶³ Therefore, mergers and conducts regarding digital platforms are investigated in the same way as all the other economic sectors. Exceptional exemptions are discussed only when regulation takes the entire field suppressing discretion of the undertakings to choose the key economic variables of productions (e.g. prices, quantity, quality).

12.4. Conclusion

This report presented the basic features of the digital chain in Brazil, the institutional framework for the digital economy and the main distinctive features of the Brazilian experience. There is a rapidly growing awareness and mature recognition among authorities and institutions of the complex challenges related to internet access and to the supply of digital services, with a focus on consumers and on the role of technology to promote social, economic and regional development.

The report described the main aspects of the digital economy in Brazil and analysed the role of competition law and institutions in this context. It explored the interface between regulation and competition policy and the role of courts. Several regulatory agencies and government bodies regulate aspects of digital markets. Regulations affecting digital platforms are enacted by different regulatory authorities, responsible for telecommunications, data protection, consumer protection, e-government, intellectual property among others. The sectoral regulators are generally well placed and equipped to deal with the digital aspects of their sectors. While at times there may be an overlap of competencies, different authorities have been able to cooperate, recognising their reciprocal roles in the regulation of digital chains.

The report showed that competition law in Brazil fully applies to digital markets. Not only does CADE review any merger related to digital companies that meets the legal thresholds – and might even request to review mergers that do not reach such thresholds but raise concerns – but may also impose structural or behavioural remedies on mergers to address competitive concerns. Likewise, it has the powers to investigate and punish digital platforms or companies in the digital economy that breach competition law, leading to fines, behavioural obligations or even exceptional structural measures of divestment.

Based on the pattern of cases regarding digital markets in the last fifteen years, one can conclude that despite having extensive powers to act, CADE has adopted a cautious approach when it comes to conducts in dynamic markets. Nonetheless, CADE has been using settlement agreements to deal with potentially anticompetitive conducts,

³¹⁶³ There are, however, some particularities of regulated digital sectors such as telecommunication. See OECD, Competition Law and Policy in Brazil – A Peer Review (OECD Pub 2010). Also, worth noting is that art. 90, sole paragraph, of the Competition Law provides for an exemption regarding the consortia formed to participate in public bids, which are not deemed to be “mergers” for the purpose of the law.

especially requiring non-discriminatory treatment and/or adjusting potentially harmful contractual provisions (e.g. exclusive dealing and MFN provisions). A field of particular interest and more interventions through settlements has been infrastructure access, especially in telecommunications markets that give support to internet services. The focus on providing access to infrastructure and to public utilities owned by former incumbents might provide an explanation. However, more recently, one could envisage less need for intervention as structural and technological changes in the infrastructure for internet provision makes it less reliant on incumbent advantages.

On the other hand, the concern to avoid undue interference when it comes to digital business models is evident. Practice and case law have shown that in very dynamic markets CADE is more concerned about intervening in a market when it should not have intervened (false positive errors – over-enforcement) than about not intervening in a market when it should have done so (false negative error – under-enforcement). CADE has also expressed the view that other authorities might be better placed to deal with certain issues such as privacy and consumer protection. This conclusion is based not only on CADE's decisions in cases related to digital markets but also on the comparison with the decisions on cases about the traditional industry, for which the Brazilian competition authority has been relatively more active.

Chapter 13: Country Report – Russia^{3164*}

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Introduction

This Report on the digital competition in the Russian Federation gives an overview of the current state of development of the digital economy in Russia and the approaches that legislators, sectorial regulators and the national competition authority take toward the various aspects of the new technological environment. It explores the general level of digitalization of the Russian economy and penetration of various technological developments, including digital platforms, e-commerce, Internet of Things, blockchain, etc. It then proceeds to describe and critically assess the institutional framework for the digital economy, the regulation effected and the competition law enforcement practices implemented during the last decade with regard to the new technological phenomena. It also presents succinctly the public debates surrounding the challenges posed by digitalisation in Russia and the ongoing reforms of competition law and regulatory policies intended to facilitate the large-scale digital transformation of the Russian economy.

13.1. What is the Business/Technological Environment for the digital economy in your jurisdiction?

13.1.1. What is the Internet access penetration level in your jurisdiction as part of the total population?

Providing fast, secured and affordable Internet to the wider population and business has been in focus of Russian authorities for a while now. According to the World Bank report, in the past years, Russia has developed a fairly strong and advanced digital infrastructure marked by a competitive telecommunications market, high rates of mobile penetration, affordable broadband, and a high level of cybersecurity.³¹⁶⁵

Composition of Internet users

As of the beginning of 2018, the Internet access penetration level among the Russian population 16+ had grown up to **72,8%** of the total population and reached 87 mil-

³¹⁶⁴ * The legislation is described as of 25 February 2019, unless specified otherwise. The exchange rate from roubles to euro is taken as of 25 February 2019, unless specified otherwise.

³¹⁶⁵ The World Bank Group Report, 'Competing in the Digital Age: Policy Implications for the Russian Federation' (September 2018), 6, <www.worldbank.org/en/country/russia/publication/competing-in-digital-age> accessed 20 February 2019.

lion.³¹⁶⁶ There are big differences in the Internet penetration level among various age categories: thus, 98% of young people (16-29 years old) and 83% of middle-agers (30-55) use Internet actively, while the share of older people (55+) remains much lower (36%), though growing steadily.³¹⁶⁷ The statistics shows that men are more active Internet users than women (as of winter 2017-2018, 74% of men and 69% of women were active users of the Internet).³¹⁶⁸

The number of Internet users on mobile devices is growing at an impressive pace. At the end of 2017, it amounted to 67 million people (56% of the total population). This is mainly related to increase in the penetration of smartphones. Thus, by the beginning of 2018, more than half (51.5%) of adult Russian population accessed Internet using smartphones. The share of users that access Internet only via mobile devices is the highest among young people (below 30) and population of rural areas.³¹⁶⁹

Regarding the geographic dispersion of the Internet users, there is a noticeable decrease in Internet penetration level as we move from big cities to rural areas, as represented in the table below (as of winter 2017-2018):³¹⁷⁰

	Moscow	Cities 500,000+	Cities 100,000+	Other cities (less than 100,000)	Rural areas
Internet Penetration Level	82%	75%	76%	71%	62%

Availability of Internet Networks

Internet access in Russia is available to businesses and to home users in various forms, including dial-up, cable, DSL, FTTH (fiber to the home), mobile, wireless and satellite, with the fiber remaining the most popular one.³¹⁷¹ According to the World Bank, Russia has achieved notable progress in developing a robust national broadband infrastructure and extensive mobile penetration.³¹⁷² As of June 2017, about 72.6 percent of Russian households enjoyed broadband Internet access, with active mobile broadband penetration at 74.9 percent.³¹⁷³ Mobile broadband connectivity is close to average for advanced

3166 GFK Report, 'Penetration of the Internet in Russia: Results of 2017' (2017) <www.gfk.com/ru/insaity/press-release/issledovanie-gfk-proniknovenie-interneta-v-rossii> accessed 25 February 2019. According to the latest survey of the National Public Opinion Research Center (WCIOM) (as of 3 February 2019) 67% of the adult (18+) Russian population use Internet on a daily basis – <https://wciom.ru/news/ratings/polzovanie_internetom> accessed 25 February 2019. This discrepancy might be attributed to the difference in how the 'Internet access penetration' is defined for statistical purposes, and also due to inclusion of 16-18 age group in the GFK's survey.

3167 GFK Report (n 2), 4.

3168 FOM (Public Opinion Foundation), 'Internet in Russia: Dynamics of Penetration. Winter 2017-2018', <<https://fom.ru/SMI-i-internet/13999>> accessed 25 February 2019.

3169 GFK Report (n 2), 6.

3170 FOM, 'Internet in Russia: Dynamics of Penetration. Winter 2017-2018' (n 4).

3171 Carlo Maria Rossotto, Natalija Gelvanovska, Dr. Yuri Hohlov, Dr. Vaiva Mačiulė, Sergei Shaposhnik, 'A Sector Assessment: Broadband in Russia' (World Bank Report, January 2015) 24 <www.worldbank.org/en/country/russia/publication/broadband-in-russia> accessed 25 February 2019.

3172 World Bank (n 1) Executive Summary, xxiv.

3173 World Bank (n 1) 53.

economies (60 active subscriptions for every 100 inhabitants), the rates of mobile phone penetration is one of the highest in the world, with the transition to 3G and 4G easier than in other markets.³¹⁷⁴ Russia has also the highest number of fiber connections in Europe.³¹⁷⁵ Russia is rapidly expanding its FTTH network, leapfrogging many European countries that have copper-based broadband access infrastructure.³¹⁷⁶

Said that, the digital divide between different regions of the country and between rural and urban areas remains a significant problem in Russia. The connectivity of ultra-remote and less economically developed areas in Russia is significantly lower than the most advanced ones.³¹⁷⁷ The disparities in access to mobile broadband are less salient, with mobile access sometimes compensating for the lack of fixed broadband.³¹⁷⁸ Rural areas remain the most under-provided – as of 2015, only one third of households in rural areas had broadband access to Internet.³¹⁷⁹ The state recognized the digital divide as a significant obstacle to effective digitalisation and in 2014 introduced the plan to connect remote settlements to the fiber Internet networks, as will be described below.

To order to provide access to the Internet to wider population, Russia relies heavily on state-owned companies.³¹⁸⁰ Thus, during recent years, the state-controlled telecom service provider Rostelecom has been holding leading positions in the market of fixed-broadband Internet services. As of 2017, Rostelecom served 37% of the users of the broadband Internet, his closest rival ER-Telecom – 11%, MTS – 9%, Vimpelcom – 7%, and Transtelecom – 5%.³¹⁸¹ Privately-owned ER-Telecom is the fastest growing Internet provider with its market share increased by 12,4% (mostly through mergers) in 2017,³¹⁸² while the state-backed giant Rostelecom has the largest increase in the absolute number of new subscribers – 400,000 in 2017 (+3,4%).³¹⁸³

Rostelecom is a vertically-integrated incumbent operator controlling nearly all key elements of the broadband value chain (access, although to a lesser extent in the biggest cities; backbone; and international connectivity). The company has approximately 500,000 km of backbone infrastructure and controls the basic capacities in six international fiber-optic cable systems.³¹⁸⁴ Transtelecom, another large state-controlled compa-

3174 Carlo Maria Rossotto and al. (n 7) 6. http://www.worldbank.org/content/dam/Worldbank/Feature%20Story/ECA/Broadband_in_Russia_Final.pdf accessed 26 February 2019.

3175 *ibid.*

3176 Carlo Maria Rossotto and al. (n 7) 6.

3177 Carlo Maria Rossotto and al. (n 7) 16, as of 2013.

3178 *ibid.* 17.

3179 *ibid.* 17.

3180 *ibid.* 25.

3181 Federal Press and Mass Communications Agency Report 'Internet in Russia in 2017: State, Trends and Development Perspective' (2018), 47, <<http://fapmc.ru/rospechat/activities/reports/2018/teleradio/main/custom/0/0/file.pdf>> accessed 26 February 2019.

3182 *ibid.*

3183 As of 2013, Rostelecom held 44,63% in the fixed-broadband market, raising concerns that strengthening its position will lead to the less competitive market and conflict of interest as the state acted as policymaker, regulator, and a significant market player (through Rostelecom) – see Carlo Maria Rossotto and al. (n 7), 32, 37.

3184 *ibid.* 37.

ny, operates the country biggest DWDM fiber backbone and other important elements of the Internet infrastructure which runs over 53,000 km.³¹⁸⁵ Both companies control many commercial Internet provider functions in large cities, but importantly most of the existing country-wide cable lines. The independent mobile operators and internet service providers typically rely on the state-controlled backbone infrastructure in provision of their services. This might bring about the conclusion that the Russian market for the Internet access services is quite competitive, but it exhibits certain degree of reliance on the state-owned infrastructure with the two state-owned operators being the leading players in the market of access to the Internet backbone infrastructure.

During last years, the state has attempted to exercise more control over the critical internet infrastructure, which further solidified position of the state-owned companies. Thus, historically, the largest traffic exchange point of the Russian Internet was MSK-IX. A few years ago, it became the part of privately owned Safedata data center group which operated big data centers in the Russian Federation.³¹⁸⁶ In 2015 Rostelecom bought a controlling stake in Safedata and gained control over the main traffic exchange point of the Runet, as well as entered the market of data storage in the run-up to enforcing the law on the storage of Russian users data exclusively in the Russian territory.³¹⁸⁷ The Ministry of Communications and Mass Media was the originator of the bill on the critical infrastructure of the Internet. The bill proposed creating a state information system (GIS) "Internet", which would contain information on critical infrastructure, including cross-border Internet channels and traffic exchange points, and obliging Internet providers to pass traffic only through traffic exchange points registered in the GIS Internet.³¹⁸⁸ This bill has not been approved. However, in December 2018 the Ministry of Digital Development backed another legislative proposal, on the autonomous operation of the Runet³¹⁸⁹ – the so-called law on "digital sovereignty"³¹⁹⁰ (has been approved in the first reading). The aim of this proposal is 'minimizing the trans-border transfer of the data exchanged between the Russian users' and ensuring the stable 'performance of Russian Internet in case Russian telecom operators are not able to connect to the foreign root Internet servers'.³¹⁹¹ This proposal establishes additional requirements to the Internet

3185 See the official web site of Transtelecom <<http://english.ttk.ru>> accessed 27 February 2019.

3186 See <http://www.cnews.ru/news/top/2018-05-17_minkomsvyazi_protiv_rostelekoma_itogi_6_let> and Vedomosti, 'Rostelecom Has Consolidated 100% SafeData for 4.1 Billion Rubles' (03 March 2017), <www.vedomosti.ru/technology/articles/2017/03/03/679905-rostelekom> accessed 01 March 2019.

3187 Decision of FAS of Russia №ADD / 42400/14 following review of the application of OJSC "Rostelecom" dated 20 October 2014, <https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ad-42400-14/?query=%C2%AB%D0%A6%D0%B5%D0%BD%D1%82%D1%80%20%D0%A5%D1%80%D0%B0%D0%BD%D0%B5%D0%BD%D0%B8%D1%8F%20%D0%94%D0%B0%D0%BD%D0%BD%D1%8B%D1%85%C2%BB> accessed 01 March 2019. According to this decision, acquisition of LLC "Data Centre" by Rostelecom was cleared unconditionally.

3188 'The State Duma introduced a law on fully autonomous RuNet' (14 December 2018), http://safe.cnews.ru/news/top/2018-12-14_v_gosdumu_vnesen_zakon_o_polnostyu_avtonomnom accessed 09 March 2019.

3189 The legislative proposal № 608767-7, <http://sozd.duma.gov.ru/bill/608767-7> accessed 10 March 2019.

3190 See 'Russians are shunning state-controlled TV for YouTube' the Economist (London, 09 March 2019), 27, <https://www.economist.com/europe/2019/03/09/russians-are-shunning-state-controlled-tv-for-youtube?fbclid=IwAR3oRu5I-iM-MecdjD7Utw3gkCRgUY2NQgERgryA8Z-ET5oUpr2jBdjaTGxs> accessed 10 March 2019.

3191 *ibid.*

service providers including abiding to the traffic routing rules set forth by Roscomnadzor; use of only traffic exchange points registered by Roscomnadzor; installing surveillance equipment that can be operated from a single control centre. The proposal also gives Roscomnadzor exceptional powers to perform the centralized control of all the Internet traffic in case of security threats.³¹⁹² It is considered as significant broadening of controlling powers of the state over the Internet traffic, as well as favouring state-controlled companies like Rostelecom trying to monopolize its position in the market of IP traffic transit.³¹⁹³

Do Internet networks have the status of utilities? Are they subject to regulation?

In the Western countries (most notably in the USA) there have been a long standing debate whether the Internet services should be treated as a public utility (like phone or electricity) and, as a result, whether the government should provide equal access to it at the affordable price – or whether it should be provided by free market forces. Thus, in the USA the broadband Internet was granted the status of public utility in 2015 and reversed back to information service classification in early 2018.³¹⁹⁴

In Russia the Internet access is treated as information service provided on a commercial basis. There are no specific regulations on providing equal access to the Internet as a public utility. Said that, FAS of Russia considers implementing this point, via setting forth in the legislation the non-discriminatory access of telecom operators to residential buildings in order to place their communication (Internet) infrastructure and provide Internet services to the end users.³¹⁹⁵ This should provide the equal access of all residents to Internet networks on accessible prices.

Affordability of networks

The Russian Federation consistently occupies top positions in the ratings of countries with the most affordable Internet. As of 2018, Russia occupied fourth place in the rating of countries with the cheapest fixed broadband Internet with the average cost of broadband amounting to 9,77\$ per month.³¹⁹⁶ Also at the end of 2018, Russia was in the top-10 countries with the cheapest mobile Internet.³¹⁹⁷

Said that, there is a certain degree of price dispersion among various cities and regions with the most expensive cities having the Internet prices 5-6 times higher than the

3192 *ibid.*

3193 'The State Duma introduced a law on fully autonomous RuNet' (n 24).

3194 See, for example 'Should the Government Regulate the Internet?', <https://billofrightsinstitute.org/elessons/should-the-government-regulate-the-internet> accessed 27 February 2019; FTC Declaratory Ruling, Report and Order on 'Restoring Internet Freedom' dated 14 December 2017 WC Docket No. 17-108.

3195 The Order of the Government of the Russian Federation No 1697-p dated 16 August 2018 'Roadmap for the Development of Competition in 2018 – 2020 years' para 10 Section VI.

3196 According to experts at Cable.co.uk and the international consumer insight consultancy BVA BDRC <www.cable.co.uk/broadband/deals/worldwide-price-comparison> accessed 27 February 2019.

3197 According to the Content Review agency, from Kommersant, Russia Depreciated Gigabyte <www.kommersant.ru/doc/3843035> accessed 27 February 2019.

cheapest ones.³¹⁹⁸ As pointed in the World Bank Group report, the price decreases are most noticeable in bigger cities due to more competitive markets, both in terms of the number of operators and the type of technological platform, while the highest prices usually characterise the Far-Eastern Region and the oil-rich areas in the far North.³¹⁹⁹ This can provide the direct link between competition in the Internet services market and the affordability of the Internet to wider population.

Is universal service for Internet access available? What are the forms it takes?

In 2014, the Federal Law 'On Communication' was supplemented with the new universal communication service ('UCS'), namely fast-speed connection to the Internet based on the fiber-optical network through access points in settlements with population of 250-500 people and through collective access device in settlements with population of at least 500 people.³²⁰⁰ According to the law, a sole operator that occupies significant position in the shared communication network market in at least two thirds of the Russian regions must provide such UCS.³²⁰¹ The operator must maintain the existing infrastructure of the UCS, including public Internet access points, as well as provide fast broadband Internet to end users. Rostelecom was selected as the sole operator for UCS based on the ten years Universal Service Obligation contract financed from the Universal Service Fund (to which all mobile operators make obligatory contributions). According to this contract, by the end of 2018 Rostelecom must provide connection access points to 13,600 rural settlements.³²⁰² As of 31 December 2017, Internet access points started to operate in 5,656 settlements with the rolling-out plan implemented by 40.5%.³²⁰³ This is a significant step towards eliminating the digital divide between different territories of the Russian Federation. Importantly, since 1 August 2017, Rostelecom cancelled the fee for use of the Internet access point provided as the UCS, which further boosted their usage.³²⁰⁴

13.1.2. Digital Economy Growth levels in your jurisdiction the last 5 years

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During the last few years Russia has hit the headlines because of its ambitions to transform the economy and become competitive in the digital sphere.³²⁰⁵ However, according

3198 As of the spring 2016 – see Yandex survey 'Internet Development in the Russian Regions', <https://yandex.ru/company/researches/2016/ya_internet_regions_2016#stoimostiskorostdostupavinternet> accessed 27 February 2019.

3199 Carlo Maria Rossotto and al. (n 7), 30.

3200 Federal Law 'On Communication' dated 07 July 2003 N 126-FZ (amended as of 03 February 2014), Article 57.

3201 ibid paragraph 2 of Article 58.

3202 <https://www.company.rt.ru/projects/uus> accessed 27 February 2019.

3203 Federal Press and Mass Communications Agency Report 'Internet in Russia in 2017: State, Trends and Development Perspective' (2018), 16 <<http://fapmc.ru/rospechat/activities/reports/2018/teleradio/main/custom/0/0/file.pdf>> accessed 26 February 2019.

3204 ibid 17.

3205 See for example Kenneth Rapoza, 'Russia Tries Rebranding Itself as a Digital Economy' Forbes (11 June 2018) <<https://www.forbes.com/sites/kenrapoza/2018/06/11/russia-tries-rebranding-itself-as-a-digital-economy/#4e60ef293314>> ac-

to the World Bank's research, the strong commitment of political leaders to such changes is not matched by traditional commercial sectors.³²⁰⁶ The research has emphasized the government-led digitalization of public sector with private sector failing to catch up.³²⁰⁷

Nikolay Nikiforov, at the time the Minister of Communications and Mass Media of the Russian Federation, mentioned in his speech to the State Duma³²⁰⁸ in 2017 that digital economy demonstrated significant growth by 59% from 2011 to 2015 which constituted 24 % of the overall GDP growth for the five-year period.³²⁰⁹ According to the McKinsey research, the digital economy amounted to 3.9% of the total GDP as of 2015.³²¹⁰ From 2011 to 2015 the digital economy grew 8.5 times faster than other sectors of Russian economy.³²¹¹

The Russian Association for Electronic Communications stated at the end of 2018 that internet economy amounted to 5.1% of the GDP with the growth of 10-15% per year while the overall share of sectors connected to digital economy exceeded 20% of the GDP.³²¹²

Information and communications technology (hereafter – **"ICT"**) sector constituted on average 2.6% as a percentage of the GDP from 2015 to 2017.³²¹³

Smart cities and networks development

In 2018 Ministry of Construction Industry, Housing and Utilities Sector of the Russian Federation (hereafter – **'Minstroy'**) adopted the "Smart city" project which should be completed by 2024.³²¹⁴ Minstroy proposed, among other things, to adopt the new legislation; to increase efficiency of utilities infrastructure through digitalization; to use digital platforms for city resources management; to create intelligent transportation system, and to introduce 'City IQ' metrics.³²¹⁵

cessed 6 March 2019.

3206 World Bank (n 1) 5.

3207 *ibid* 9.

3208 The lower chamber of the Russian Parliament.

3209 'Nikolay Nikiforov Made a Speech at the Government Hour at the State Duma of the Russian Federation' (Ministry of Digital Development, Communications and Mass Media of the Russian Federation, 18 October 2017) (in Russian) <<https://digital.gov.ru/ru/events/37519>> accessed 6 March 2019.

3210 Alexander Aptekman and others, 'Digital Russia: The New Reality' (2017) 4 (in Russian) <<https://www.mckinsey.com/~/media/McKinsey/Locations/Europe%20and%20Middle%20East/Russia/Our%20Insights/Digital%20Russia/Digital-Russia-report.ashx>> accessed 6 March 2019.

3211 *ibid* 32.

3212 'RAEC Summed Up 2018 and Presented the Results of the Research "Runet Economics"' (RAEC, 13 December 2018) (in Russian) <<https://raec.ru/live/raec-news/10765/>> accessed 6 March 2019.

3213 Gulnara Abdrakhmanova and others, Digital Economy 2019: The Brief Statistical Collection (NRU HSE 2019) 80; (Цифровая экономика: 2019: краткий статистический сборник / Г.И. Абдрахманова, К. О. Вишнеvский, Л. М. Гохберг и др.; Нац. исслед. ун-т «Высшая школа экономики». – М.: 75 НИУ ВШЭ, 2019. стр. 80.).

3214 See the Order of the Ministry of Construction Industry, Housing and Utilities Sector of the Russian Federation dated 31 October 2018 № 695/np (in Russian) < www.minstroyrf.ru/upload/iblock/ecf/Pasport-proekta-umnyy-gorod.pdf> accessed 6 March 2019.

3215 'The Project "Smart City" of Minstroy of Russia is Supported by the Expert Group of "Digital Economy"' (Minstroy Russia,

According to the research prepared by the Center for Strategic Research (hereafter – ‘CSR’), Russian projects on urban digital transformation are focused mainly on modernization of infrastructure and are narrow in their scope while more broad solutions are implemented only on the level of greenfield projects.³²¹⁶ The examples of such greenfield projects are ‘Innopolis’ in the Republic of Tatarstan, Kazan Smart City, ‘Akademicheskiy’ district in Yekaterinburg, ‘Skolkovo’ in Moscow Region and ‘Innograd Yuzhniy’ in Saint-Petersburg.³²¹⁷ Besides such ambitious projects, there are local solutions like ‘Active Citizen’ platform for electronic referendums in Moscow or free wireless internet provided at the Moscow public transportation.³²¹⁸ More complex and sweeping projects are connected, for example, to security, use of smart grid and smart lighting.³²¹⁹ As for the greenfield projects, Skolkovo provides complex solutions with ‘fundamental improvements to urban infrastructure with the help of network technologies and the introduction of services for life, work, studies as well as the development of an interface making it possible to fully utilize the opportunities of a ‘smart city’.³²²⁰ The project of Innopolis involves the creation of ‘an extensive business infrastructure (technology parks, development centers, etc.), Russia’s first IT University (in partnership with Carnegie Mellon University, USA), a full range of social and commercial infrastructure’.³²²¹

Moscow also actively applies smart city concepts. An example of a smart-city project is Rublyovo-Arkhangelskoye district designed by famous architects with an ambition to create a sustainable smart city.³²²² Moreover, there is a ‘Smart City – 2030’ project on a city-level.³²²³ This initiative covers multiple domains like human and social resources, urban environment, digital mobility, city economy, safety and ecology, and digital government.³²²⁴ According to this project, the smart city’s architecture is comprised of four levels: consumers and interfaces, services, data, and digital infrastructure (telecommunication networks, data storage, information security, video monitoring, and alarm).³²²⁵

Researchers from the CSR assessed the development of technology in Russia needed for smart cities based on the patent activity. For example, Russian technologies connected to fire alarm systems, building safety, outdoor surveillance systems, high-voltage

29 June 2018) (in Russian) <www.minstroyrf.ru/press/proekt-umnyy-gorod-minstroya-rossii-podderzhan-ekspertnoy-gruppoi-po-tsifrovoy-ekonomike/> accessed 6 March 2019.

3216 A.Kuzmina and others, ‘The Priority Ways to Implement the Smart City Technologies in Russian Cities’ (2018) 44 (in Russian) <www.csr.ru/wp-content/uploads/2018/06/Report-Smart-Cities-WEB.pdf> accessed 6 March 2019.

3217 *ibid* 45.

3218 *ibid* 46.

3219 *ibid* 47.

3220 ‘Smart City’ (Skolkovo) <http://sk.ru/city/p/smart_city.aspx> accessed 6 March 2019.

3221 ‘Innopolis’ (Ministry of Informatization and Communications of the Republic of Tatarstan, 9 October 2018) <<http://mic.tatarstan.ru/eng/innopolis.htm>> accessed 6 March 2019.

3222 See India Block, ‘Zaha Hadid Architects designing smart city outside Moscow’ Dezeen (13 November 2018) <www.dezeen.com/2018/11/13/moscow-smart-city-rublyovo-arkhangelskoye-zaha-hadid-architects> accessed 6 March 2019.

3223 See ‘Moscow “Smart City – 2030”: A brief version’ <https://2030.mos.ru/netcat_files/userfiles/documents_2030/strategy_tezis_en.pdf> accessed 6 March 2019.

3224 *ibid* 49.

3225 *ibid* 44.

alternating current systems, inverters, and connected car systems are on a par with the level of world leaders in these spheres.³²²⁶ On the other hand, technologies related to smart home, transportation, and medicine as well as control of energy, heat, and water usage are significantly lagging behind the leaders in these areas.³²²⁷ The Russian technologies in smart management of waste, housing and utilities together with sharing economy, internet of things, BIM and 5G are even less developed.³²²⁸

Corporate finance for the digital economy

As digitalization of Russian economy is to some extent pioneered by the state, implementation of ambitious national programmes involves considerable state funding. According to the Passport of the National Programme 'Digital Economy of the Russian Federation', the spending from all sources should amount to (as a percentage of the GDP) 1.9% in 2018, 2.2% in 2019, 2.5% in 2020, 3% in 2021, 3.6% in 2022, 4.3% in 2023, 5.1% in 2024.³²²⁹ The overall spending between 2019 and 2024 is estimated to be 1,837,696 million roubles (approximately 24,723 million EUR) with non-budget sources equals to 535,315 million roubles (approximately 7,201.8 million EUR).³²³⁰ The government will allocate the funds mostly to the 'Information Infrastructure' project (772,401 million roubles – approx. 10,391.5 million EUR),³²³¹ 'Digital Technologies' project (451,809 million roubles – approx. 6,072.4 million EUR),³²³² and 'Digital Public Administration' project (235,705 million roubles – approx. 3,171 million EUR).³²³³

The significant state support of domestic R&D projects is not matched by the compared private funding. Thus, the World Bank's report suggests that substantial Russian state support for the private sector R&D promotes 'over-reliance on government funding', as the business contribution to gross domestic R&D expenditure remains low compared to other global tech leaders.³²³⁴

In 2017, the Russian Venture Company (hereinafter – '**RVC**') prepared the Report, which shows that venture capital funding faces some difficulties in Russia. Thus, the Report indicated that the amount of venture investments decreased from 376 million dollars in 2012 to 120 million dollars in 2016-2017 with a median size of a deal decreased by more than 11 times.³²³⁵ Additionally, investors shifted to late-stage ventures after the recession of 2014 in order to reduce risks. Another factor contributing to the decrease in pri-

3226 A.Kuzmina and others (n 52) 50.

3227 *ibid.*

3228 *ibid.*

3229 Passport of the National Program 'Digital Economy of the Russian Federation' dated 24 December 2018 adopted by the Presidium of the Council for the President of the Russian Federation on Strategic Development and National Projects.

3230 *ibid* 75-76.

3231 *ibid* 72.

3232 *ibid* 74.

3233 *ibid.*

3234 World Bank (n 1), p. 110.

3235 G.Androuschak and others, 'National Report on Innovations in Russia 2017' 29-30 (in Russian) <www.rvc.ru/upload/iblock/c64/RVK_innovation_2017.pdf> accessed 6 March 2019.

vate investments was availability of financing via grants which provide more preferential terms, thus, making early-stage start-ups to seek grants rather than VC funding.³²³⁶ Lack of exit opportunities is considered to be a serious problem as well.³²³⁷ At the same time, state-backed venture funds reduced its presence in the Russian market focusing mainly on biotech and industrial technology rather than the ICT sector.³²³⁸

The Russian Venture Capital Association provided statistics on the investments in the Russian ICT sector. In 2013, private equity (PE) and venture capital (VC) investments amounted to 1,574 million dollars, but this figure dropped to 173 million dollars in the three quarters of 2018.³²³⁹ The amount of PE investments outweighed the VC investments during this period.³²⁴⁰ Decomposing the size of VC investments by fund type shows that state-backed VC funds participated in 11% of overall investments in 2017, corporate-backed funds accounted for 5% of investments in three quarters of 2018, seed funds participated in 23% and private funds – in 83% in the same period.³²⁴¹

There are some examples of successful mixed state-private funding. According to 2017 Global Start-up Ecosystem Report, 'Skolkovo technopark, Moscow's most prominent incubator, raised \$158 billion in funding from the government, foundations, and investors'.³²⁴²

At the same time the authors noted that 92% of seed rounds came from Moscow investors, indicating a lack of capital attracted from outside of the capital city and making it more difficult for regional start-ups to access funding.³²⁴³ Additionally, Moscow's ecosystem showed one of the worst rates of early-stage funding growth due to political issues.³²⁴⁴ Overall ecosystem value was estimated at 3.4 billion dollars with global median at 4.1 billion dollars.³²⁴⁵

Upon analysis of venture investments in 2018, the Inc. Russia magazine and RVC stated that foreign investments accounted for 12,615.4 million roubles, corporations for 8,570.7 million roubles, private investors for 1,860.1 million roubles, state funds for 1,765 million roubles, private funds for 1,457.4 million roubles, accelerators for 466.8 million roubles.³²⁴⁶ According to the same source, foreign investments accounted for 47% and domestic investments – for 53% of the overall capital invested in Russian start-

3236 *ibid* 30.

3237 *ibid* 35.

3238 *ibid* 31.

3239 'Market Review: Private and Venture Investments in Russia 9 Months of 2018' 74 (in Russian) <<http://www.rvca.ru/rus/resource/library/rvca-yearbook/>> accessed 6 March 2019.

3240 *ibid* 76.

3241 *ibid* 79.

3242 JF Gauthier and Marc Penzel and Max Marmer, 'Global Startup Ecosystem Report 2017' 115, <<https://startupgenome.com/thank-you-enjoy-reading>> accessed 6 March 2019.

3243 *ibid*.

3244 *ibid*.

3245 *ibid* 116.

3246 Daniil Plenin, 'Venture Investments 2018: Infographics' (Inc. Russia, 25 December 2018) (in Russian) <<https://incrussia.ru/understand/infografika-venchurnye-investitsii-2018/>> accessed 6 March 2019.

ups. Some trends of 2018 include the overall growth of the VC market (which is still a small one), active participation of corporations, and active involvement of state.³²⁴⁷ Thus, in 2017 Russian President ordered five Russian state corporations (Rosatom, Rostec, Roscosmos, United Aircraft Corporation, United Shipbuilding Corporation) to set up venture funds with participation of RVC.³²⁴⁸ Additionally, according to news, the Government might ask all state companies to set up their own corporate venture funds to invest in innovative start-ups.³²⁴⁹

At the end of 2018 RVC together with the EY ranked venture funds based on the number of deals for 2018, with the top venture funds being: Runa Capital, I2BF Global Ventures, Target Global, Primer Capital, Fort Ross Ventures, and Gagarin Capital.³²⁵⁰ Top seed funds include IIDF, Day One Ventures, TealTech Capital, Finshi Capital, Moscow Seed Fund, The Untitled ventures.³²⁵¹ The most active foreign funds were GPS Ventures, Vostok New Ventures, FJ Labs, Access Industries.³²⁵² Additionally, RVC partnering with the PwC identified the most active corporate investors: Sistema, Sberbank, Mail.Ru Group, QIWI, PIK Group, Rosnano, Softline, S7 Group, Rostec, and Pharmstandard.³²⁵³

13.1.3. How many consumers are actively engaging in e-commerce?

Author: Daria Kotova

Russian law does not have a specific definition for e-commerce,³²⁵⁴ but according to the OECD definition, electronic commerce, or e-commerce, is 'the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders'.³²⁵⁵

As described in the above section 1.1., the high level of ICT development and Internet access penetration provides the necessary conditions for functioning of e-commerce in Russia. Although the Russian e-commerce market is developing, it has not reached yet the capacity and ambition of the leading markets, such as Germany, United States and

3247 *ibid.*

3248 'Five State Corporations Will Launch Venture Funds in 2018 with the Participation of RVC' (TASS, 7 November 2017) (in Russian) <<https://tass.ru/ekonomika/4708569>> accessed 6 March 2019.

3249 Dmitry Grinkevich, 'Not yet a Venture: State Companies are Recommended to Invest in Startups' (Izvestia, 25 December 2018) (in Russian) <<https://iz.ru/825782/dmitrii-grinkevich/eshche-ne-venchur-goskompaniiam-rekomenduiut-investirovat-v-startapy>> accessed 6 March 2019.

3250 'RVC Presents the Annual Rating of the Most Active Venture Investors in Russia' (RVC, 26 December 2018) (in Russian) <<https://www.rvc.ru/press-service/news/investment/138693/>> accessed 6 March 2019.

3251 *ibid.*

3252 *ibid.*

3253 *ibid.*

3254 A. Saveliev, *Electronic Commerce in Russia and Abroad: legal regulation* (Statut 2016) 5.

3255 Glossary of Statistical Terms, OECD, <<https://stats.oecd.org/glossary/detail.asp?ID=4721>> accessed 3 March 2019.

Korea.³²⁵⁶ UNCTAD's B2C E-Commerce Index 2018 ranked Russia 43rd.³²⁵⁷

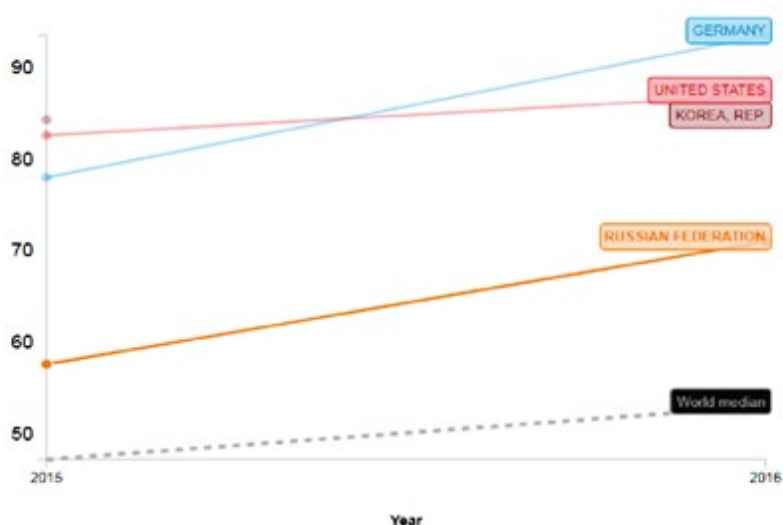


Figure 1. The vertical axis shows the indicators for the UNCTAD B2C E-Commerce Index (1-100).

While statistics for 2019 was not available as of February 2019, the Russian Ministry of Industry and Trade estimates that Russian e-commerce market amounts to 1 trillion roubles (approximately 13,5 billion EUR) and the share of e-commerce in retail non-food sales is equal to 7.2%.³²⁵⁸ Data Insight³²⁵⁹ statistics showed 18% growth in online sales in 2018 and estimated that the revenue received from 290 million of online orders amounted to 1,15 trillion roubles (approximately 15,5 billion EUR).³²⁶⁰ Said that, the revenue grows due to increase in the number of orders while the average bill continues to decrease.³²⁶¹ The forecast for development of e-commerce is positive with double increase in revenue by 2023 (given the rate of growth is 16% in average).³²⁶² The leading e-commerce platforms are Wildberries.ru (clothes and accessories), Citilink.ru (computers and electronics), Mvideo.ru (computers and electronics), Eldorado.ru (computers

3256 See figure 1. Source: Country Rank and Value in the UNCTAD B2C E-commerce Index, <https://tcdata360.worldbank.org/indicators/hec11e54d?country=RUS&indicator=24717&countries=USA,DEU,KOR&viz=line_chart&years=2015,2016> accessed 4 March 2019.

3257 UNCTAD B2C E- Commerce Index 2018. Focus on Africa, United Nations, 19, <https://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d12_en.pdf> accessed 4 March 2019.

3258 'Minpromtorg Estimates Russia's E-Commerce Volume at 1 Trillion Rubles', Kommersant, (23 May 2018), <<https://www.kommersant.ru/doc/3637286>> accessed 4 March 2018.

3259 A Moscow-based research agency with specialization in e-commerce, advertising and consulting services. Data Insight uses data from surveys, aggregated data from web-browsers, online shops visitors statistics and their own data. <www.datainsight.ru>.

3260 'Internet Commerce in Russia 2018', Data Insight, 20 <http://datainsight.ru/sites/default/files/DI_Ecommerce%202018.pdf> accessed 4 March 2018.

3261 ibid 21.

3262 ibid 23.

and electronics).³²⁶³ In general, the e-commerce market is weakly consolidated with the four largest actors controlling only 27% of the market in the absence of one dominant actor.³²⁶⁴

As for the consumer behavior, online supermarkets, electronics stores and fashion on-line stores together process 61% of all posted orders (28% and 33% respectively).³²⁶⁵ Young consumers prefer smartphones and online shopping applications, although the majority of orders are posted via desktop computers and laptops.³²⁶⁶

Apart from using online shops and shopping platforms, Russian consumers also actively use C2C e-commerce services. According to Data Insight, C2C online sales process 90 million of orders and receive 295 billion roubles of revenue, as compared to 230 million of orders and 970 billion roubles of revenue received from B2C online sales.³²⁶⁷ Almost 87% of private vendors use Internet as a tool for sales. However, their activity is mostly limited to local markets (most often their hometowns).³²⁶⁸ The largest online platforms for C2C sales are domestic V Kontakte, Avito, Youla, although foreign platforms, such as Instagram and WhatsApp, are also present.³²⁶⁹

While it is obvious that the Russian e-commerce market is growing and gaining traction, it also has certain features that may slow down its development. For example, there is large discrepancy in geographical distribution of online sales, most of which are accounted for big cities. C2C sales are also limited to the specific territories, they are concentrated and seem to be popular among consumers who normally do not shop online.³²⁷⁰ Finally, the cost of delivery is high while the delivery itself is very slow and almost always provided by the traditional postal service provider, Russian Post.³²⁷¹ Marketing strategies are also imperfect with only limited number of marketing tools used by Russian online sales platforms.³²⁷²

To summarize, the Russian growing e-commerce market suggests the need for a more in-depth analysis of e-commerce as a part of the digital economy and, in particular, for the preventive analysis of market power in the e-commerce market which might potentially face consolidation and emergence of one dominant actor.³²⁷³

3263 *ibid* 64.

3264 'Internet Commerce (Russian Market)' < [http://www.tadviser.ru/index.php/Статья:Интернет-торговля_\(рынок_России\)#.D0.9A.D1.80.D1.83.D0.BF.D0.BD.D0.B5.D0.B9.D1.88.D0.B8.D0.B5_.D0.B8.D0.B3.D1.80.D0.BE.D0.BA.D0.B8_.D1.80.D1.8B.D0.BD.D0.BA.D0.B0_.D0.B2_2017_.D0.B3.D0.BE.D0.B4.D1.83](http://www.tadviser.ru/index.php/Статья:Интернет-торговля_(рынок_России)#.D0.9A.D1.80.D1.83.D0.BF.D0.BD.D0.B5.D0.B9.D1.88.D0.B8.D0.B5_.D0.B8.D0.B3.D1.80.D0.BE.D0.BA.D0.B8_.D1.80.D1.8B.D0.BD.D0.BA.D0.B0_.D0.B2_2017_.D0.B3.D0.BE.D0.B4.D1.83)> accessed 6 March 2019.

3265 *ibid* 57.

3266 *ibid* 51-53.

3267 'Internet Commerce in Russia 2018. Numbers and Facts', Data Insight, 14, <http://datainsight.ru/sites/default/files/DI-RIF2018.pdf> accessed 4 March 2019.

3268 *ibid* 15.

3269 Data Insight, 'Internet Commerce in Russia 2018', 71 <http://datainsight.ru/sites/default/files/DI_Ecommerce%202018.pdf> accessed 4 March 2019.

3270 Internet Commerce in Russia 2018 (n 101), 31.

3271 *ibid* 43, 45.

3272 'National Report on E-Commerce Development in Russia', UNIDO (2017) 25.

3273 'Internet Commerce (Russian Market)' (n 97).

13.1.4. Engagement with social networks

Author: Katya Semenova

Most popular social networks in your jurisdiction

National networks Vkontakte and Odnoklassniki are the most popular social networks in Russia followed by foreign networks Instagram, Facebook, Twitter, Youtube and domestic networks Moi Mir, and LifeJournal.³²⁷⁴ According to the World Bank, Vkontakte outranked other social network in Russia by the number of messages and authors per month, as users post 60% of the public messages in Vkontakte.³²⁷⁵ Moreover, according to the World Bank, national social networks have much higher revenues than their foreign competitors in Russia.³²⁷⁶ Domestic social networks Vkontakte and Odnoklassniki surpass foreign ones, since Russian networks have localized interface and simple settings.³²⁷⁷ Nevertheless, World Bank experts note that the share of foreign social networks is growing in Russia among the mobile audience, as mobile access gains popularity.³²⁷⁸

Do consumers practice single-homing or multi-homing regarding social networks?

Consumers in Russia actively practice multi-homing regarding social networks, meaning that they have active accounts in two and more social networks simultaneously.³²⁷⁹ According to Mail.ru Group, the owner of the Russian most popular social networks Vkontakte, Odnoklassniki, and Moi Mir, in 2015 84% users of Odnoklassniki visited Vkontakte, whilst 68% users of Vkontakte used Odnoklassniki, and 80% of Moi Mir users had accounts both in Odnoklassniki and Vkontakte.³²⁸⁰ Moreover, 96% of Twitter users visited Vkontakte, and 43% of Facebook users had accounts in Vkontakte.³²⁸¹

According to the statistics of Russian marketing company HIConversation, in 2018 19 billion users practiced single-homing regarding Vkontakte, whilst only 1.8 billion users

3274 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto, 'Digital Platforms in Russia: Competition Between National and Foreign Multi-sided Platforms Stimulates Growth and Innovation' (2019) Vol. 21 Issue: 2 Digital Policy, Regulation and Governance 129, 141 <<https://doi.org/10.1108/DPRG-11-2018-0065>> accessed 06 March 2018. See also 'Report of Brand Analytics. Social Networks in Russia: Numbers and Trends' (Autumn 2018), <<https://bit.ly/2StBB5A>> accessed 06 March 2018.

3275 World Bank (n 1) 41.

3276 *ibid* 41.

3277 For example, Vkontakte was always available in Russian language, whilst Facebook was initially in English. In addition, Vkontakte has plain settings and is easy to use and share media files. See Baran, Katsiaryna S., and Wolfgang G. Stock, 'Acceptance and Quality Perceptions of Social Network Services in Cultural Context: Vkontakte as a Case Study', Proceedings of the 9th International Multi-Conference on Society, Cybernetics and Informatics (IMSCI 2015), 12 <https://www.researchgate.net/publication/291350866_Acceptance_and_Quality_Perceptions_of_Social_Network_Services_in_Cultural_Context_Vkontakte_as_a_Case_Study> accessed 06 March 2018.

3278 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto (n 110) 11.

3279 Mail.ru Group, 'Research on Social Networks' (2015), Slide 7. <https://www.slideshare.net/dze/socialnetworkmailrugroup?fb_action_ids=10203713963437682&fb_action_types=slideshare%3Afavorite&fbclid=IwAR2yJN9NiVzFuPfzfo9ujcO51DPaFwJC6CjflEZqdTGRhAADxvGvonyhzE> accessed 06 March 2018.

3280 *ibid* slide 7.

3281 *ibid*.

used Facebook as the only social network.³²⁸² Moreover, 19.7 billion users practiced multi-homing regarding both Vkontakte and Facebook, and 21.6 billion users practiced multi-homing regarding Vkontakte and Instagram.³²⁸³ Therefore, multi-homing regarding social networks is wide spread in Russia with the majority of single-homing users belonging to Vkontakte.

13.1.5. Level of development of the IoT and Industry 4.0. in your jurisdiction

Author: Daria Kotova

According to expert estimates,³²⁸⁴ Russia is at the stage of early adoption of the Internet of things ('IoT') and other technologies brought by Industry 4.0. The IoT-related markets in Russia encompass equipment producers, network equipment producers, telecom operator, IoT platforms operators, start-ups, associations and investors as well as developers of applications and ready-made solutions.³²⁸⁵ Thus, the elements of Industry 4.0 are already functional in Russia, although the regulatory framework is still falling behind.

Certain estimates are already available on the volume of the Industry 4.0. in Russia, though they are not very consistent. This may be due to the lack of clear understanding of how Industry 4.0. functions and what technologies it includes. For instance, estimates by the Russian IT experts and businesses ranged from 40 to 600 billion roubles for 2018.³²⁸⁶ AC&M Consulting is more pessimistic with only 11 billion roubles for 2018.³²⁸⁷ Nonetheless, the forecasts for the industry development remain generally positive. For instance, PwC calculated that the cumulative effect from the use of IoT in various industries may reach 2,8 trillion roubles (approximately 37.6 billion EUR) by 2025.³²⁸⁸ While less optimistic forecasts estimate the possible revenue increase from 220 to 592 billion roubles,³²⁸⁹ all estimates coincide that the IoT industry in Russia will continue its growth.

This statement is also supported by increasing attention of state authorities who seek to regulate the emerging economy. As noted by RAEK and Rostelekom, the regulatory framework starts to take shape along with the spread of the IoT, leading to eradica-

3282 HIConversation, 'Statistics on Social Networks in Russia' (2018), <<https://hiconversion.ru/blog/statistika-socialnyh-setej-v-rossii-na-2018-god>> accessed 06 March 2018.

3283 *ibid.*

3284 'How Will Industry 4.0. Be Created', RIA Novosti (4 December 2017) <<https://ria.ru/20171204/1510024631.html>> accessed 6 March 2019; RAEK, Rostelekom, IoT Research 2017 (2017), <<https://raec.ru/upload/files/iiot1712.pdf>> 28-29

3285 RAEK, Rostelekom, IoT Research 2017 (2017), <<https://raec.ru/upload/files/iiot1712.pdf>> 32.

3286 'Internet of Things, IoT, M2M Market in Russia', Tadviser (21 December 2018) <[http://www.tadviser.ru/index.php/%D0%A1%D1%82%D0%B0%D1%82%D1%8C%D1%8F:%D0%98%D0%BD%D1%82%D0%B5%D1%80%D0%BD%D0%B5%D1%82_%D0%B2%D0%B5%D1%89%D0%B5%D0%B9,_IoT,_M2M_\(%D1%80%D1%8B%D0%BD%D0%BE%D0%BA_%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B8\)](http://www.tadviser.ru/index.php/%D0%A1%D1%82%D0%B0%D1%82%D1%8C%D1%8F:%D0%98%D0%BD%D1%82%D0%B5%D1%80%D0%BD%D0%B5%D1%82_%D0%B2%D0%B5%D1%89%D0%B5%D0%B9,_IoT,_M2M_(%D1%80%D1%8B%D0%BD%D0%BE%D0%BA_%D0%A0%D0%BE%D1%81%D1%81%D0%B8%D0%B8))> accessed 6 March 2019.

3287 Advanced Communications & Media, Review of the IoT Market in Russia (2017) <www.acm-consulting.com/data-downloads/doc.../191-iot-report-in-russian.html> accessed 6 March 2019 6.

3288 PwC, Internet of Things. Future Technology Available Today (PwC Russia 2017) <https://www.pwc.ru/ru/publications/IoT_English_version.pdf> accessed 6 March 2019 5.

3289 'The Internet of Things (IoT) Market May Exceed 590 bln. Rubles in 2022', RBK (24 August 2018) <<https://marketing.rbc.ru/articles/10435/>> accessed 6 March 2019.

tion of technological and economic obstacles.³²⁹⁰ Examples of the regulatory initiatives for the new economy include the National Programme 'Digital Economy of the Russian Federation' that defines the federal projects in IoT-related spheres,³²⁹¹ and the roadmap 'Development of Technologies in the Sphere of the Internet of Things'³²⁹² prepared with the participation of the industry.

Statistics already indicates the companies that currently lead the process of harnessing the IoT and other technologies in Russia, such as MegaFon (telecom provider), MTS (telecom provider), Rostelekom (telecom provider), Kaspersky Laboratory (software developer), Vimpelcom (telecom provider), Rostech (state-owned corporation).³²⁹³ Other companies in this ranking, however, are the foreign players, such as Microsoft, IBM and others. As for the patent activity, according to the data of European Patent Office, Russia has submitted 109 patent applications for inventions related to Industry 4.0. since 1991 and occupies the 23rd place in the ranking.³²⁹⁴

The development of the IoT and Industry 4.0. in Russia faces both challenges and positive perspectives. As noted by Sergey Alimbekov from the Internet Initiatives Development Fund, a venture capital fund, the lack of infrastructure in Russia creates a bottleneck for the businesses willing to use the new technologies.³²⁹⁵ Along with the lack of common industry standards and regulatory framework,³²⁹⁶ the challenges include cyber security issues and regulatory threats expressed in a less liberal regulatory environment than needed for the smooth development of the new technology.³²⁹⁷

Nonetheless, the Russian IoT market has many opportunities for development and improvement. Economic factors, such as availability of state programs, reduction of prices for equipment and development of the Big Data market contribute to creation of the 'IoT-friendly' business environment in Russia.³²⁹⁸

3290 RAEK, Rostelekom, (n 121) 28.

3291 Passport of the National Program 'Digital Economy of the Russian Federation' (n 65).

3292 Agenda ('roadmap') 'Development of Technologies in the Sphere of the Internet of Things' < http://www.sovel.org/images/upload/ru/1259/Roadmap_FRIL_IoT.pdf> accessed 6 March 2019.

3293 Vladimir Zotov, 'Influence Rating: Russian Companies Made It to The IoT Leaders' Technouklad (18 September 2017) < <http://iotintelligence.ru/posts/2616422>> accessed 6 March 2019.

3294 European Patent Office, Patents and the Fourth Industrial Revolution. The Inventions Behind Digital Transformation. (2017) < [http://documents.epo.org/projects/babylon/eponet.nsf/0/17FDB5538E87B4B9C12581EF0045762F/\\$FILE/fourth_industrial_revolution_2017_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/17FDB5538E87B4B9C12581EF0045762F/$FILE/fourth_industrial_revolution_2017_en.pdf)> accessed 6 March 2019 96.

3295 RAEK, Rostelekom (n 121) 28.

3296 *ibid* 45.

3297 PwC, 'Internet of Things. Future Technology Available Today' (PwC Russia 2017), 9, <https://www.pwc.ru/ru/publications/IoT_English_version.pdf> accessed 6 March 2019.

3298 RAEK, Rostelekom (n 121) 43, 44.

13.1.6. Please specify the major digital platforms in your jurisdiction and their market penetration.

Author: Katya Semenova

Being a part of the global digital economy, the Russian economy attracts the major transnational digital platforms, as well as gives rise to the national ones. The platforms, both national and transnational, operate in various service markets ranging from agriculture, tourism, health, transport, finance to online advertising, cloud computing, taxi aggregator and others.

Internet access providers. The development of broadband Internet access (including technologies of the future, such as 5G and Narrow-Band IoT standard) is a priority set forth in the strategic legal documents.³²⁹⁹ To achieve the ambitious goal of high speed broadband internet services across the country, legal documents require to build infrastructure network facilities, and reduce administrative barriers to provide competitiveness in Russian broadband market.

Russian broadband market, both fixed and mobile, is moderately concentrated. According to the 2015 World Bank report, the following five companies had the largest shares in Russian fixed broadband market in 2013: Rostelecom (44.8%), ER-Telecom (11.3%), Mobile TeleSystems (10.2%), Vimpelcom (9.7%), TransTeleCom (4.7%), and AKADO Telecom (3.3%).³³⁰⁰ Notably, three of these companies are also major players in the Russian mobile broadband market: Vimpelcom (35,7%), Mobile TeleSystems (33,46%), and Rostelecom (1.45%).³³⁰¹ Other big players in the mobile broadband market are Megafon and Tele2. According to the Report of TMT-Consulting as of 2018,³³⁰² the list of major players in fixed broadband market has not changed, but the level of market concentration has grown since 2014, as total share of major companies increased up to 70%.³³⁰³

Moreover, Rostelecom is the sole operator of the universal communication service,³³⁰⁴ providing broadband access for remote underpopulated regions of Russia. Since the National Program 'Digital Economy of the Russian Federation' requires to provide broader internet access throughout the country, aiming at 89% Internet access penetration by 2021,³³⁰⁵ Rostelecom will further enhance its market power, as the sole operator as UCS.

3299 The Presidential Decree dated 09 May 2017 No 203 on the 'Strategy for the Development of the Information Society in the Russian Federation for 2017-2030'; the Presidential Decree dated 7 May 2018 No 204 on 'National Goals and Strategic Challenges in the Russian Federation for the Period up to 2024'.

3300 Carlo Maria Rossotto and al. (n 7) 34.

3301 ibid 32.

3302 Considering lack of recent international experts' estimates, we refer to the national statistics on broadband market for the latest data. Notably, the World Bank's numbers related to the broadband market can be hardly compared to the numbers from TMT-Consulting Report, since the methodologies of the reports are different.

3303 TMT-Consulting, 'Russian B2C Broadband Market 2018' <<http://tmt-consulting.ru/wp-content/uploads/2019/02/%D0%A2%D0%9C%D0%A2-%D0%BE%D0%B1%D0%B7%D0%BE%D1%80-%D0%A8%D0%9F%D0%94-2018-%D0%BF%D1%80%D0%B5%D0%B4%D0%B22.pdf>> accessed 06 March 2019.

3304 See Section .1. of this Report.

3305 Passport of the National Program 'Digital Economy of the Russian Federation' (n 65).

The major players in both fixed and mobile broadband markets are represented by domestic companies with the share of foreign capital relatively low.³³⁰⁶

Search engines (users). Two companies control Russian search engine market: Yandex and Google. Yandex is the Russian multinational corporation founded in 1997 and owning one of the largest search engines worldwide.³³⁰⁷ According to statcounter.com, in January 2019 Yandex had the largest share in the desktop search engine market (57.49%), followed by Google with 38.15%. However, in the mobile search engine market Google leads competition with 51.07%, while Yandex has 47.49%.

Social networks. Russian companies Vkontakte and Odnoklassniki, both owned by Mail.ru Group, dominate the Russian market of social networks. According to the WCIOM survey, 30% of Russian internet users visit Vkontakte, and 20% use Odnoklassniki.³³⁰⁸ Notably, both of these social networks are among the most popular social platforms in Russia: Vkontakte takes the first place, and Odnoklassniki the sixth place.³³⁰⁹

Under the WCIOM survey, foreign social networks have a modest share of Russian audience: 19% use Instagram, 4% belongs to Facebook, and Twitter has only 1%.³³¹⁰ Nevertheless, the survey shows that the foreign social networks have higher popularity among young Russians. For example, the most popular social network among people 18-24 years old is Instagram (38%). Therefore, Russian companies currently control the market of social networks. However, the share of foreign companies might increase due to young audience.

Online advertising. The size of Russian online advertising market amounts to \$2.09 billion. According to AppNexus, Russian market is among the most rapidly growing digital advertising markets worldwide.³³¹¹ National Yandex.Direct, Vkontakte.ads, myTarget, as well as foreign Google AdWords, and Facebook Ads are the major players in Russian online advertising market.³³¹²

As of the end of 2017, two Russian companies (Yandex and Mail.ru Group) control 66% of the online advertising market, with the share of Yandex amounting to 53%, and the share of Mail.Ru Group (mostly coming from Vkontakte) equal to 14%, according to ACAR study.³³¹³

3306 Carlo Maria Rossotto and al. (n 7) 33.

3307 <<https://yandex.com/company/>> accessed 06 March 2019.

3308 WCIOM survey on Social Networks Engagement in Russia dated 12 February 2018. <<https://wciom.ru/index.php?id=236&uid=116691>> accessed 06 March 2019.

3309 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto, 'Digital platforms in Russia: competition between national and foreign multi-sided platforms stimulates growth and innovation' Digital Policy, Regulation and Governance (2019), 12. <<https://doi.org/10.1108/DPRG-11-2018-0065>> accessed 06 March 2019.

3310 WCIOM survey (n 144).

3311 AppNexus, 'The Digital Advertising Stats You Need for 2018', <https://www.appnexus.com/sites/default/files/whitepapers/guide-2018stats_2.pdf> accessed 06 March 2019.

3312 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto, 'Digital platforms in Russia...' (n 146).

3313 RBC, 'Experts Estimate the Growth of the Russian Advertising Market in 2017' (20 March 2018) <https://www.rbc.ru/technology_and_media/20/03/2018/5aafd2019a79475c572625fd> accessed 06 March 2019.

Cloud computing. Creating the competitive domestic cloud computing infrastructure to store and process the data is a strategic goal set in Russian legal acts.³³¹⁴ The acts put forward the protectionism policy. Namely, authorities should foster the development and use of Russian cloud computing technology rather than use of foreign R&Ds.³³¹⁵ Moreover, data protection law requires to store all data of Russian users in the territory of the Russian Federation.³³¹⁶

Three sub-markets form digital cloud market: software as a service (SaaS), infrastructure as a service (IaaS), and platform as a service (PaaS).³³¹⁷ Under the TMT-Consulting report, SaaS generate 65%, IaaS generate 31%, and PaaS generate 4% of the Russian digital cloud market revenue in 2017.³³¹⁸ Russian companies dominate both SaaS and IaaS markets. SKB Contour (38%), Mango Office (7%), Softline (7%), B2B-Center (4%), Corus Consulting (4%) own the largest shares in the Russian SaaS market. The major players in the Russian IaaS market are Servionika (11%), DataLine (9%), Rostelecom (9%), ITGrad (8%), and Krok (8%). Russian companies are unlikely to lose their dominant position in SaaS and IaaS markets, due to Russian data protection law requirements mentioned above.

Information about ownership (foreign or domestic, state-owned versus private)

According to the research conducted by the World Bank, domestic companies retain the largest market shares in the Russian markets of social networks, internet access, online advertising, cloud computing, desktop search engines markets, taxi aggregator services.³³¹⁹ On the other hand, Russian markets are characterised by intensive competition among Russian and foreign platforms.³³²⁰ Russian companies face particularly fierce competition from foreign companies in the markets of mobile search engines and online advertising (as demonstrated in the above sections of this Report). The possible reason for the strong position of Russian digital platforms in the local markets is that, from the very start, Russian tech companies were better attuned to the local needs than their foreign competitors. For example, the Yandex search algorithm processed Russian

3314 Presidential Decree dated 7 May 2018 No 204 'National Goals and Strategic Challenges in the Russian Federation for the period up to 2024'; Passport of the National Program 'Digital Economy of the Russian Federation' (n 65).

3315 According to the State Programme on 'Digital Economy of the Russian Federation', cloud computing market is steadily growing – by about 40 percent annually, and law on data localization promotes further the growth of cloud computing market.

3316 Article 18(5) of the Federal Law dated 27 July 2006 No 152-FZ 'On Data Protection'.

3317 OECD Report 'Cloud Computing: The Concept, Impacts and the Role of Government Policy' (2014), 9, <[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP\(2011\)19/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP(2011)19/FINAL&docLanguage=En)> accesses 06 March 2019.

3318 TMT-Consulting, 'Russian Digital Cloud Market in 2017' <<http://tmt-consulting.ru/wp-content/uploads/2018/06/%D0%A0%D0%B5%D0%B9%D1%82%D0%B8%D0%BD%D0%B3-%D0%A2%D0%9C%D0%A2-%D0%9A%D0%BE%D0%BD%D1%81%D0%B0%D0%BB%D1%82%D0%B8%D0%BD%D0%B3-%D0%A0%D1%8B%D0%BD%D0%BE%D0%BA-%D0%BF%D1%83%D0%B1%D0%BB%D0%B8%D1%87%D0%BD%D1%8B%D1%85-%D0%BE%D0%B1%D0%BB%D0%B0%D1%87%D0%BD%D1%8B%D1%85-%D1%83%D1%81%D0%BB%D1%83%D0%B3-2017.pdf>> accesses 06 March 2019.

3319 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto, 'Digital platforms in Russia...' (n 146), 131.

3320 *ibid* 135.

language requests better than early versions of its international rivals.³³²¹ This enabled Yandex to provide more relevant services to Russian users and gain momentum in winning the market.

State versus private.

Private rather than state-owned companies operate in the Russian digital services markets. For example, Yandex operating in the search engine and online advertising markets is a private company owned by Arkady Volozh (10.2%), employees and company management (4.1%), pre-IPO shareholders (0.8%), with the rest of the equity being free float.³³²² Mail.ru Group active in social networks and online advertising markets is a private company, owned by MIH Mail Investment Company (27,6%), Megafon (15,2%), Tencent (7,4%), and other minority shareholders (49,8%).³³²³

In Russian fixed broadband market, however, the major company, Rostelecom, is partially state-owned, since Russian Federation has 48% stake in it.³³²⁴ Other major players in the Russian fixed and mobile broadband markets (Megafon,³³²⁵ Mobile Telesystem³³²⁶ and Vimpelcom)³³²⁷ are private.

Common ownership by major business players/conglomerates and institutional investors

In the Russian digital market the most prominent example of common ownership is an ownership of three popular Russian social networks, Vkontakte, Odnoklassniki, and Moi Mir by Mail.ru Group. In addition to its own social network Moi Mir, by 2014 Mail.ru Group had acquired two more social media platforms, Vkontakte and Odnoklassniki, which made Mail.ru Group the leader in the social network market.³³²⁸

No other information with regard to common ownership of competitors by conglomerates and institutional investors is available in the public domain. However, there are examples of institutional investors seeking to build a large digital portfolio across many areas. The most telling example is Sberbank, the large state-owned Russian banking and financial services company, whose 50%+1 voting share is owned by the Central Bank of Russia.³³²⁹ In September 2009, Yandex issued one priority share to Sberbank

3321 'Yandex, Russia's Biggest Technology Company, Celebrates 20 Years' The Economist (London, 30 September 2017), <<https://www.economist.com/business/2017/09/30/yandex-russias-biggest-technology-company-celebrates-20-years>> accesses 06 March 2019.

3322 'Yandex N.V. Companies Reference Book' (Vedomosti) <<https://www.vedomosti.ru/companies/yandex-n-v>> accesses 06 March 2019.

3323 'Mail.ru Group Annual Report' (2017), <<https://corp.imgsmai.ru/media/files/mail.rugrouparfy2017.pdf>> accesses 06 March 2019.

3324 <https://www.company.rt.ru/ir/stock_and_bonds/structure/> accesses 06 March 2019.

3325 <http://corp.megafon.ru/investoram/stock/share_capital/> accesses 06 March 2019.

3326 <<http://www.disclosure.ru/issuer/7740000076/>> accesses 06 March 2019.

3327 'Vimpelcom. Companies Reference Book' Vedomosti <<https://www.vedomosti.ru/companies/vimpelkom>> accesses 06 March 2019.

3328 <<https://corp.mail.ru/en/press/releases/10118/>> (accessed 06.03.2019).

3329 US SEC, Form 20-F, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 for the fiscal year ended December 31, 2017, Section 'Relationship with Sberbank', <<https://yandex.gcs-web.com/>>

for its nominal value of €1.00. This share gives Sberbank the right to block the purchase of more than 25% of Yandex's shareholders' equity and/or votes to a third party, essentially giving to the state decisive control over the ownership structure of the largest Russian tech company³³³⁰ and guaranteeing that 'the company will not fall into foreign control'.³³³¹ Since then Sberbank continued to acquire stakes in various digital companies, including online payment system Yandex.money,³³³² and e-commerce platform on the basis of Yandex.Market with the ambition to create Russian Amazon.³³³³ Since October 2018, there have been rumors that Sberbank was planning to acquire a major (up to 30%) stake in Yandex, thereby creating the full-scale digital ecosystem and implementing its ambition to become the digital company of the global scale.³³³⁴

13.1.7. Local large digital players and their market shares

Russian digital companies are active in the whole array of local markets. According to the World Bank experts, Russian large digital players operate in retail (Wildberries, Ozon, LaModa, Avito, Citilink), tourism (tutu.ru, aviasales), entertainment (afisha.ru, parter.ru), healthcare (prodoctorov.ru), and other markets.³³³⁵ Under the World Bank Report, in 2017 "[T]he revenue of Russian digital platforms exceeds US\$17 billion with a value of about 1 percent of Russian GDP... [I]n total, the market size of foreign digital platforms adds around US\$8 billion to the overall digital platform market in Russia and represents about 30 percent of the overall digital platform market".³³³⁶

The largest players in the Russian digital markets are Yandex and Mail.ru Group. Yandex develops a number of state-of-the-art technologies, including a search engine, Russian-speaking voice assistant, driverless taxi, online marketplace. As mentioned above, Yandex has 57.49% in desktop search engine market. In February 2019 Yandex.Market, online marketplace, and Yandex News were the most visited websites in the Russian Federation.³³³⁷

node/11336/html#Toc> accessed 11 March 2019.

3330 *ibid.*

3331 'State-owned Sberbank in bid to take controlling stake in Yandex, Russia's largest internet company' the Bell (18 October 2018), <https://thebell.io/en/state-owned-sberbank-in-bid-to-take-controlling-stake-in-yandex-russia-s-largest-internet-company> accessed 11 March 2019.

3332 *ibid.*, US SEC, Form 20-F, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 (n 169).

3333 'Sberbank will invest 30 billion rubles. in Yandex.Market' RBC (Moscow, 9 August 2017), <https://www.rbc.ru/business/09/08/2017/598ab40f9a794732bb6522b6> accessed 11 March 2019; 'Yandex and Sberbank launched the third online trading platform' Kommersant (Moscow, 22 November 2018), <https://www.kommersant.ru/doc/3806827> accessed 11 March 2019.

3334 'State-owned Sberbank in bid to take controlling stake in Yandex...' (n 167); 'Sberbank May Become a Major Shareholder of Yandex' Vedomosti (Moscow, 18 October 2018), <https://www.vedomosti.ru/finance/articles/2018/10/18/784055-sberbank> accessed 11 March 2019.

3335 Yaroslav Eferin, Yuri Hohlov, and Carlo Rossotto (n 146).

3336 World Bank (n 1) 40-41.

3337 <https://radar.yandex.ru/top_list?type=classified&month=2019-02&isSearch=true&row_id=market-yandex-ru&offset=1> accesses 06 March 2019.

Mail.ru Group owns three popular social networks in Russia: Vkontakte, Odnoklassniki, and Moi Mir. It is also active in the markets of email services; e-commerce (includes Delivery Club, the largest online food delivery platform in Russia; Youla, domestic marketplace; Pandao, the cross-border ecommerce platform); and has also significant presence in online entertainment.³³³⁸ As of September 2017, Mail.Ru Group ranked first by the size of daily mobile audience, mostly due to its social networks and email services.³³³⁹

The Level of Development of the blockchain economy.

Both government and business community have big expectations about emergence of the blockchain economy in Russia. In 2017 World Bank ranked Russia third globally in terms of number of ICO projects.³³⁴⁰ In terms of fundraising, experts ranked Russia second globally with \$300 million raised by ICO projects in 2017 (though only 3% of them managed to launch the project according to the plan).³³⁴¹ The expert also estimated that the volume of Russian blockchain market was over 1 billion roubles (13,4 million EUR).³³⁴² Experts were less optimistic in 2018 expressing doubts in the potential for a broader adoption of the new technology.³³⁴³ According to EY study, in 2018 token price of 86% ICO start-ups fell below initial value, whilst 30% of start-ups that undergone ICO had almost zero value³³⁴⁴. Moreover, a lot of investors lost their investments.³³⁴⁵

Following this, some international experts, like Christine Lagarde, the Managing Director of the IMF, called for the control over cryptocurrencies.³³⁴⁶ This idea has found support in Russia. Thus, a legislative proposal on digital financial assets³³⁴⁷ regulating tokens and smart contracts, as well as a legislative proposal on crowdfunding³³⁴⁸ passed the first

3338 <https://corp.mail.ru/en/company/portal/> accessed 11 March 2019.

3339 Press-release, 'Mail.Ru Group Is the Market Leader in Terms of Mobile Audience' <<https://corp.mail.ru/en/press/releases/10118/>> accesses 06 March 2019.

3340 World Bank Group, Cryptocurrencies and Blockchain (ECA Economic Update, Office of the Chief Economist May 2018) 38 <<<http://documents.worldbank.org/curated/en/293821525702130886/pdf/125990-WP-7-5-2018-9-39-58-ECAEconomicUpdateCryptocurrenciesandBlockchainMayweb.pdf>> accesses 06 March 2019.

3341 Valentina Drofa, 'Sobering Phase. Why the ICO Market Will Have to Become More Civilized' (18 January 2018), <<https://www.forbes.ru/finansy-i-investicii/355849-faza-otrezvleniya-pochemu-rynku-ico-pridetsya-stat-bolee-civilizovannym>> accesses 06 March 2019.

3342 'The Russian Market of Blockchain Projects Was Predicted to Reach 1 Billion Roubles in 2017' (10 November 2017) <<https://incruussia.ru/news/rost-rynka-blokchejn-proektov/>> accesses 06 March 2019. It should be pointed out the difficulty of estimating the real volume of the blockchain market due to its opacity and the volatility of the token value, so the above figure might not be representative.

3343 Gaidar Institute For Economic Policy, Russian Economy In 2017. Trends And Outlooks 23 <<https://www.iep.ru/files/text/trends/2017-eng/Book.pdf>> accesses 06 March 2019.

3344 EY Press Release, 'ICO portfolio is down by 66% in the first half of 2018, according to EY study' (19 October 2018) <https://www.ey.com/en_gl/news/2018/10/i-c-o-portfolio-is-down-by-sixty-six-percent-in-the-first-half-according-to-ey-study> accesses 06 March 2019.

3345 *ibid.*

3346 Richard Partington, 'Fight fire with fire': IMF's Lagarde calls for bitcoin crackdown', The Guardian (13 March 2018) <<https://www.theguardian.com/technology/2018/mar/13/imf-christine-lagarde-calls-bitcoin-crackdown-cryptocurrencies>> accesses 06 March 2019.

3347 <<http://sozd.duma.gov.ru/bill/419059-7>> accesses 06 March 2019.

3348 <<http://sozd.duma.gov.ru/bill/419090-7>> accesses 06 March 2019.

reading in the State Duma in May 2018, but since then they have been stalled subject to further amendments (which include, *inter alia*, dropping the concept of 'cryptocurrency' out of the bill).

Currently companies and public authorities in Russia are developing some blockchain projects. For example, FAS of Russia considered opportunities to use blockchain technologies for electronic document exchange in cooperation with Sberbank and Aeroflot.³³⁴⁹ FinTech association is developing the Masterchain project to use for financial messaging and mortgage transactions.³³⁵⁰ Sberbank and Alpha Bank are working on prototypes of software intended to manage documents integrity and availability using blockchain.³³⁵¹ The number of projects, however, dropped significantly compared to 2017.³³⁵² Despite expectations and big investments in Russian blockchain market, practical application of blockchain technologies is currently limited to pilot transactions only.³³⁵³

13.2. What is the institutional framework for the digital economy in your jurisdiction?

13.2.1. Is there a digital strategy agenda in your jurisdiction? How this (if at all) relates to competition law and policy and what is the level of involvement of the competition authority (or authorities)?

In 2017 several legal acts set the digital strategy agenda for the Russian Federation. Thus, the Presidential Decree on the 'Strategy for the Development of the Information Society in the Russian Federation for 2017-2030' (hereinafter – '**Information Society Strategy**') identified among its principal aims the development of the digital economy by, *inter alia*, creation of new markets, and achievement of national leadership in the digital markets, as well as increase in competitiveness of the Russian high-tech companies globally.³³⁵⁴ Moreover, the Information Society Strategy emphasized the need to adjust competition law and regulation to the digital age.³³⁵⁵

3349 FAS of Russia Press Release dated 19 December 2017 <<https://fas.gov.ru/news/23564>> accesses 06 March 2019.

3350 Vladimir Soloviev, 'Fintech Ecosystem and Landscape in Russia' (2018) 7 Journal of Reviews on Global Economics, 381, <<http://lifesienceglobal.com/pms/index.php/jrge/article/view/5702>> accessed 06 March 2019.

3351 Sberbank Press Release, 'Sberbank Has Opened a Blockchain Laboratory' <https://www.sberbank.ru/ru/press_center/all/article?newsID=e998242c-156e-42b7-ad5e-0a3ad68379fa&blockID=1303®ionID=&lang=ru> accesses 06 March 2019.

3352 Olga Kharif, Blockchain, 'Once Seen as a Corporate Cure-All, Suffers Slowdown' Bloomberg (31 July 2018) <<https://www.bloomberg.com/news/articles/2018-07-31/blockchain-once-seen-as-a-corporate-cure-all-suffers-slowdown>> accessed 06 March 2019.

3353 'Ninety percent of corporate "Blockchain" Pilots Will by no means Materialize, Researchers Say' IoEBusiness (02 August 2018) <<https://www.ioebusiness.com/blockchain/90-of-corporate-blockchain-pilots-will-by-no-means-materialize-researchers-say/>> accessed 06 March 2019.

3354 The Presidential Decree dated 09 May 2017 No 203 on the 'Strategy for the Development of the Information Society in the Russian Federation for 2017-2030'.

3355 *ibid* provision 42 (L).

To implement the Information Society Strategy, the Government adopted the State Programme on 'Digital Economy of the Russian Federation' (hereinafter – the '**State Programme**').³³⁵⁶ Despite the fact that in February 2019, the Passport of the National Programme 'Digital Economy of the Russian Federation'³³⁵⁷ replaced the State Programme,³³⁵⁸ the latter laid the ground for the development of digital economy in Russia in 2017-2018. Moreover, the State Programme played an important role in Russian competition law development, since the State Programme assigned a significant role to the FAS of Russia in adjusting competition law to digital economy.

The State Programme set forth, as the priority goals, creation of the Russian digital economy ecosystem based on data as its key resource, as well as the development of infrastructure and reduction of entry barriers for high-tech businesses.

Regarding competition law, the State Programme prescribed to develop the legal mechanism to facilitate the access of start-ups to the digital markets, including access to the big data, key technologies, etc.; to develop the legal mechanism to prevent algorithmic collusion, as well as other anticompetitive practices in innovation markets; adjust the market analysis, *inter alia*, taking into account concentration of big data as a tool for monopolisation and network effects of the digital platforms.³³⁵⁹ According to the State Programme, FAS of Russia and Ministry of Economic Development were in charge of preparing amendments to competition law (in close cooperation with HSE—Skolkovo Institute for Law and Development, Yandex, Internet Initiatives Development Fund, and Expert Council under the Government of the Russian Federation).³³⁶⁰ In January 2019 FAS of Russia submitted the legislative proposal on these amendments called the 'Fifth antimonopoly package' to the Government of Russian Federation for further consideration.³³⁶¹

The Passport of the National Programme 'Digital Economy of the Russian Federation' does not focus on competition law. However, it sets forth the significant increase of the budget for digital economy development in Russia, creating sustainable and secure high speed telecommunications infrastructure for transmission, processing and storage of big data, as well as preferential development and use of Russian software.³³⁶²

Another important legal act for Russian competition law in the digital age is the Presidential Decree on the 'National Plan for the Development of Competition in the Russian Federation for 2018-2020' (hereinafter – '**National Plan for the Development of**

3356 The State Programme on 'Digital Economy of the Russian Federation' adopted by Order of the Government of the Russian Federation No 1632-p dated 28 July 2017.

3357 Passport of the National Programme 'Digital Economy of the Russian Federation' (n 65).

3358 The Order of the Government of the Russian Federation No 195-p dated 12 February 2019 'On the repeal of the Order of the Government of the Russian Federation No 1632-p dated 27 July 2017'.

3359 The State Programme on 'Digital Economy of the Russian Federation' (n 192), para 1.10.1.

3360 *ibid* 'Regulation' Section, provision No. 01.01.003.006. See also Section 2.4 'Institutional Architecture'.

3361 For the detailed description of the 'Fifth antimonopoly package' and other reforms of Russian competition law see Section 2.6. 'Recent and Ongoing Reforms of Competition Law'.

3362 Passport of the National Programme 'Digital Economy of the Russian Federation' (n 65).

Competition’).³³⁶³ It sets forth ‘effective prevention of cross-border antitrust violations as well as strengthening the competitiveness of Russian companies in global markets’ as the key goals of competition law reforms in the digital age.

To implement the National Plan for the Development of Competition, the Government of the Russian Federation adopted ‘Roadmap for the Development of Competition in 2018 – 2020’, describing in details further amendments to the competition law required in the digital age.³³⁶⁴

13.2.2. What is protected by property rights (rights to exclude, transfer and monetise)?

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Intellectual property rights in the digital economy

The digital economy tests traditional legal concepts regarding data regulation with new business models and industries. While the vast amount of data is generated by people using the Internet (including social networks), machines with their sensors and the Internet of Things generate industrial data. Since opportunities to capitalize on these data are enormous, the ownership of the data becomes a crucial question. The regulation of data property rights may be a potential answer. At the same time, current legal framework assigns an important role to intellectual property rights and personal data protection. Hence, the questions regarding the data ownership are yet to be answered by scholars and lawmakers. Russia is actively adjusting its economy to the widespread digitalization and recent legislative initiatives can be of some relevance to this debate. Special attention should be paid to the State Programme, the documents adopted in furtherance of it, relevant legislative proposals as well as scholar debates. Such non-profit organizations as ‘Digital Economy’ and Skolkovo Foundation play a key role in this process. The Passport of the Federal Project ‘Normative Regulation of Digital Environment’ of the National Programme ‘Digital Economy of the Russian Federation’ (hereafter – **‘Federal Project on Regulation’**) contains the provisions on forthcoming regulations on the use of data and results of intellectual activity.³³⁶⁵ Besides the state policies related to the emerging data economy, Russian experts and scholars try to provide answers to conceptual issues currently discussed in other countries.

Russian law contains the provisions on intellectual property rights in Part 4 of the Civil Code of the Russian Federation (hereafter – **‘Civil Code’**) that protects the ‘results of intellectual activities’ (intellectual property) relevant to a digital economy, such as com-

3363 The Decree of the President of the Russian Federation dated 21 December 2017 No. 618 ‘On the Main Directions of the State Policy for the Development of Competition’.

3364 ‘Roadmap for the Development of Competition in 2018 – 2020 years’ (n 31), as described in further details in Section 2.6. ‘Recent and Ongoing Reforms of Competition Law’.

3365 See Points 01.01.003 and 01.01.004 of the Passport of the Federal Project ‘Normative Regulation of Digital Environment’ of the Passport of the National Program ‘Digital Economy of the Russian Federation’ (n 65).

puter programs, databases, know-how, and patents, providing IP holders with the exclusive right.³³⁶⁶ Chapter 70 of the Civil Code covers copyright law. According to Article 1259 computer programs are objects of copyright and are protected as literary works. Chapter 71 of the Civil Code covers the neighbouring rights which include, *inter alia*, databases. Chapters 72 and 75 of the Civil Code cover patent law and know-how respectively. It is noteworthy that Russian law separates exclusive rights from property rights.³³⁶⁷ Besides intellectual property rights, the Federal Law 'On Personal Data' dated 27 July 2006 No. 152-FZ (hereafter – '**Law on Personal Data**') is relevant to the case at hand together with the Federal law 'On Commercial Secrets' dated 29 July 2004 No. 98-FZ (hereafter – '**Law on Commercial Secrets**') and the Federal law 'On Information, Informational Technologies, and the Protection of Information' dated 27 July 2006 No. 149-FZ (hereafter – '**Law on Information**').

Rights on Databases

Exclusive rights of database manufacturers were introduced in Russian law with the adoption of Part 4 of the Civil Code. Russian lawmakers relied on the EU Directive 96/9/EC and pursued the goal to provide protection to those who invested in the creation of a database.³³⁶⁸ Database rights (Articles 1333-1336 of the Civil Code) are treated as the neighbouring rights. Elena Voinikanis indicates that the Russian choice of related (neighbouring) rights regime to protect investments in databases is similar to German and Austrian legislation.³³⁶⁹

According to Article 1333 of the Civil Code, a manufacturer of a database whose creation (including the processing or presentation of the relevant materials) requires significant financial, material, organizational or other costs retains an exclusive right to that database. Article 1334 of the Civil Code stipulates that unless proven otherwise, a database whose creation requires significant cost is deemed to be a database comprising at least 10,000 independent information elements (materials). Furthermore, the exclusive right of a database manufacturer is recognized independently of the existence of copyrights and other exclusive rights to materials comprising the database. Article 1335 of the Civil Code sets 15 year term of statutory protection for the rights of a database manufacturer, which is resumed with every database update.

The current widespread use of social networks, where users generate data on their own and thereby fill the networks' databases voluntarily, poses the difficult question of the access to these large data sets for the third parties (for examples, delivering data analytic services). The recent litigation between one of the biggest Russian social networks

3366 Articles 1225 and 1229 of the Civil Code of the Russian Federation.

3367 For example, see on the topic of exclusive and property rights Vitaly Kalyatin, 'On Correlation between Exclusive and Property Rights in the Contemporary Information Society' (2018) 5 *Zakon* 54; (Калятин В.О. О соотношении исключительного права с правом собственности в современном информационном обществе // Закон. 2018. №05).

3368 Vitaly Kalyatin and Elena Voinikanis, Database as an Object of Legal Regulation (Statut 2011) 88 (Калятин В.О., Войниканис Е. А. База данных как объект правового регулирования. М.: Статут, 2011, стр. 88).

3369 *ibid* 88-89.

'V Kontakte' and a data analytics company 'DOUBLE,' provides a great source of case law on that topic, as it is one of the first cases connected to database neighbouring rights protection in the context of social networks.

The case had been litigated in both first and appellate instances, before the Court for Intellectual Property Rights returned it to the first instance for a re-trial by its decision dated 24 July 2018.³³⁷⁰ 'V Kontakte' claimed that some information from its social network database was automatically collected, copied and systematized by 'DOUBLE' for commercial purposes since the proprietary technology of 'DOUBLE' allowed, for example, to assess the creditworthiness of borrowers based on this information. 'DOUBLE' capitalized on its technology by selling services to other companies. The court of the first instance dismissed the claims of 'V Kontakte' because the company failed to prove the substantial investment in the creation of a database and the existence of exclusive rights to it. However, the court of appellate instance upheld the claim of 'V Kontakte' and the case went to the Russian Court for Intellectual Property Rights for cassation. Firstly, the Court for Intellectual Property Rights decided that a database manufacturer had no obligation to fill the database himself as he can simply create the conditions for others to fill the database with the data. Secondly, the court indicated that as far as the database at hand comprises much more than 10,000 independent information elements (materials), according to the Article 1334 of the Civil Code creation of such a database is presumed to require significant investments. That means that the defendant ('DOUBLE') has to prove that the costs for assembling a database were not substantial. The court concluded that 'DOUBLE' failed to do that. Thirdly, 'DOUBLE' claimed that 'V Kontakte' invested in the creation and maintenance of a social network, while the creation of a database was not intentional, constituting merely a 'spin off' to its main activity. However, the court ruled that it did not matter for the case at hand. The courts should establish the substantial investments in the creation of a database, not in the creation of data. Thus, the court upheld the decision of the appellate instance that the social network database did exist and 'V Kontakte' had exclusive rights to it by the virtue of being its manufacturer. Lastly, the court addressed the claim of 'V Kontakte' regarding the violation of its exclusive rights by 'DOUBLE'. It appeared that lower courts failed to assess how the proprietary technology of 'DOUBLE' allowed the company to extract and use the data of 'V Kontakte'. As a result, the case went for re-trial to the lower court.

The case encouraged the discussion on the data ownership in the context of digital economy and social networks. For example, a representative of 'DOUBLE' Evgeny Oreshin claimed that company's technology operated in the same way as search engines like Yandex and Google by allowing its clients to search the information on people from open sources.³³⁷¹ Additionally, he pointed out that allowing social networks to have a

3370 Decision of the Court for Intellectual Property Rights on the case № A40-18827/2017 dated 24 July 2018 <http://kad.arbitr.ru/PdfDocument/1f33e071-4a16-4bf9-ab17-4df80f6c1556/4c9d2b02-4fbd-4554-82c8-53282523639c/A40-18827-2017_20180724_Reshenija_i_postanovlenija.pdf> accessed 3 March 2019.

3371 See Evgeny Oreshin, 'The Case Vkontakte VS DOUBLE on the Use of Open Users' Data: Position of DOUBLE in the Court for Intellectual Property Rights' (Zakon, 15 June 2018). <https://zakon.ru/blog/2018/6/15/delo_vkontakte_vs_dabl_ob_ispolzovanii_obschedostupnyh_dannyh_polzovatelej_poziciya_dabl_v_sude_po_i> accessed 3 March 2019.

monopoly on users data could lead to negative effects, especially for competition.³³⁷² Lawyers found the similarities between this case and the case *HiQ Labs v. LinkedIn* where the US court rejected demands of LinkedIn to prohibit HiQ to automatically collect open data of LinkedIn users because such prohibition would empower big companies and endanger the free exchange of information in the Internet.³³⁷³

Recently, this issue has been discussed again, but on the level of legislative initiative. The Russian journal *Kommersant* wrote about a new legislative proposal on the use of social networks users data, which was prepared by the non-profit organization 'Digital Economy'.³³⁷⁴ According to this proposal, social networks would have to notify users about the level of privacy provided by the network and, if it is an open network, users data would become accessible to everybody. However, if a social network provides confidentiality settings allowing users to close their accounts, such social network is obliged to protect users private data.³³⁷⁵ The proposed legislation is motivated by the risk of monopolization of data by internet platforms. 'V Kontakte' opposed to this legislative initiative claiming that it endangers confidentiality of users data as it allows any third parties to collect data without permission and favour the interests of personal data brokers.³³⁷⁶

Hence, the way in which rights to databases will adjust to social networks activity is yet to be decided in Russia. The upcoming final court ruling on the 'V Kontakte' case and legislation, that will be enacted based on the 'Digital Economy' initiative may provide a legal basis to settle this issue in future.

Rights on Personal Data

There is a debate in Europe regarding the introduction of property rights on personal data.³³⁷⁷ However, currently personal data is not covered by property rights and instead is regulated by the personal data protection provisions. Russian legislation is no different in this respect. Thus, Chapter 2 of the Law on Personal Data is dedicated to the principles and requirements for personal data processing, Chapter 3 covers the rights of a personal data subject, and Chapter 4 regulates the obligations of an operator.

Compared to the European approach, provision of the GDPR on data portability is not represented in the Law on Personal Data.³³⁷⁸ On the other hand, the Law on Personal

3372 *ibid.*

3373 See Evgeny Oreshin and Irina Shurmina, 'Who Owns the Data from Social Networks' *Vedomosti* (Moscow, 28 May 2018) <<https://www.vedomosti.ru/opinion/articles/2018/05/28/770882-dannie-sotssetei>> accessed 3 March 2019.

3374 See Julia Tishina and Dmitry Shestoporov, 'The Responsibility of Platforms for the Data Security Has Been Detailed' *Kommersant* (Moscow, 19 November 2018) <<https://www.kommersant.ru/doc/3804410>> accessed 3 March 2019.

3375 *ibid.*

3376 See 'VKontakte Criticized the Draft on the Access to the Social Networks' User Data' *RIA* (Moscow, 19 November 2018) <<https://ria.ru/20181119/1533073895.html>> accessed 3 March 2019.

3377 For example, see Nadezhda Purtova, 'Do Property Rights in Personal Data Make Sense after the Big Data Turn?' (2017) 21 *Tilburg Law School Legal Studies Research Paper Series 1*, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3070228> accessed 3 March 2019.

3378 Evgeny Guk and Artem Dmitriev, 'GDPR: What Should Russian Business Know?' (PwC, 12 September 2017) 11 <<https://www.pwc.ru/ru/events/assets/gdpr-review.pdf>> accessed 3 March 2019.

Data is similar to the GDPR in regard to the processing of data only for the declared purposes.³³⁷⁹

According to Article 5.8.7 of the State Programme by the end of 2019 property rights to the data created by users of the internet should be legally separated from data created by the use of the Internet of Things.³³⁸⁰ For example, Elvira Talapina considers this proposition as an application of property rights regime to users personal data.³³⁸¹ Besides, the Federal Project on Regulation states that the Law on Personal Data and other laws should be amended in 2019 in order to clarify the process of personal data anonymization, terms and conditions of its use, the procedure for getting a user consent, and obligations to maintain the data security.³³⁸²

Recently Russian lawmakers have come up with the draft amendments to the Law on Information to regulate big data.³³⁸³ Among some important provisions of the amendments, Article 1(2) introduces a term 'big personal data' as an anonymized data on people and their behaviour collected from different sources including the internet. Additionally, Article 1(2) introduces the concept of an 'operator of big personal data' and Article 12³ covers the creation of the register of operator of big personal data. The amendments have not been supported by the government authorities, in particular Roskomnadzor, and business community.³³⁸⁴ The Legal Department of the State Duma, in turn, concluded that the additional resolution of Russian government is needed.³³⁸⁵ As a result, the State Duma Committee on Informational Policy, Technologies and Communications returned the bill back to the originators of the proposal.³³⁸⁶

Besides the above-mentioned legislative initiatives, the debates of who should own personal data are currently underway in Russia. For example, Natalya Kasperskaya proposed that 'big personal data' of Russian users should be owned by the state, because these days such data was easily accessible to foreign companies.³³⁸⁷ In her opinion, the way the Chinese government and Facebook cooperate is an example of how it should be done.³³⁸⁸ Such a radical position is motivated by the concern for state sovereignty

3379 *ibid* 10.

3380 However, since the State Programme was replaced by the Passport of the National Program in February 2019, the further implementation of such initiative is unclear.

3381 Elvira Talapina, 'Law and Digitalization: New Challenges and Prospects' (2018) 2 *Journal of Russian Law* 5, 8; (Э.В.Талапина, Право и цифровизация: новые вызовы и перспектива // Журнал российского права. 2018. №2, стр. 8).

3382 See Passport of the Federal Project 'Normative Regulation of Digital Environment' (n 201) point 01.01.003.002.

3383 See Draft Law № 571124-7 'On amending Federal Law "On Information, Informational Technologies, and the Protection of Information"' <<http://sozd.duma.gov.ru/bill/571124-7>> accessed 3 March 2019.

3384 See 'Roskomnadzor Criticized the Draft on the Regulation of "Big Data"' RBC (Moscow, 8 November 2018) <<https://www.rbc.ru/rbcfreenews/5be43dcd9a79476cbd4624f9>> accessed 3 March 2019.

3385 See Response of the Law Department on the Compliance to the Article 104 of the Constitution of the Russian Federation <<http://sozd.duma.gov.ru/bill/571124-7>> accessed 3 March 2019.

3386 See Decision of a Committee (The State Duma Committee on Informational Policy, Technologies and Communications) <<http://sozd.duma.gov.ru/bill/571124-7>> accessed 3 March 2019.

3387 See Ekaterina Kazachenko, 'Kasperskaya: "Big Data of Russians" Should Belong to a State' (TASS, 29 November 2016) <<https://tass.ru/ekonomika/3824223>> accessed 3 March 2019.

3388 *ibid*.

on the Internet, privacy of users and their data security.³³⁸⁹ Current political tensions between Russia and Western countries may further fuel these ideas.

However, a business perspective on the use of personal data is different. The draft amendments to the Law on Personal Data, which have been proposed by the business community, provide companies with additional rights to users data.³³⁹⁰ More specifically, companies are now allowed to share data with third parties, and while users are entitled to know who these parties are, they have no right to stop such sharing.³³⁹¹ Additionally, companies gain the right to process data for goals to which users have not necessarily consented.³³⁹² However, such amendments have not become a law yet. Federal Project on Regulation also provides for the future amendments to the Civil Code, the Law on Information and other laws in order to set the rules for access to publicly available data in terms of clarifying the procedure of depersonalization of personal data, the conditions and procedure for their use, as well as the procedure for obtaining consent and protection of rights and interests of citizens.³³⁹³

Rights on Industrial Data

Besides people who actively use the Internet and generate a vast amount of data, machine sensors and the Internet of Things are also the sources of what can be called 'industrial data'. The protection of such data in the digitalized economy is becoming an issue these days.

The Higher School of Economics prepared the Report on the regulation of data as a part of the National Programme 'Digital Economy of the Russian Federation'.³³⁹⁴ They examined the issue of property rights on industrial data and concluded that exclusive rights on databases were not fully applicable to the case at hand. The collection of raw data generated without human participation does not constitute an original work in the sense of copyright, and investments into equipment which generates industrial data are unlikely to be considered as investments in the database creation. This prevents protection of machine-generated data by means of exclusive neighbouring right.³³⁹⁵ The authors also think that protection of trade secrets does not apply to industrial data as third parties can have indirect access to such data and the cost of maintaining secrecy may

3389 See the interview of Natalya Kasperskaya on this topic to Pavel Kanygin, 'As a Policeman, I First See a User as a Potential Criminal' (Novaya Gazeta, 17 December 2016) <<https://www.novayagazeta.ru/articles/2016/12/17/70936-ya-kak-militsioner-vizhu-v-polzovatele-snachala-potentsialnogo-prestupnika>> accessed 3 March 2019.

3390 See Svetlana Yastrebova, 'Russians Can Lose Control Over Their Personal Data' (Vedomosti, 16 August 2018) <<https://www.vedomosti.ru/technology/articles/2018/08/17/778398-kontrol-personalnimi-dannimi>> accessed 3 March 2019; Section 01.01.003.002 'The Text of the Legislative Proposal on Personal Data' <<https://sk.ru/foundation/legal/p/03.aspx>> accessed 3 March 2019.

3391 *ibid.*

3392 *ibid.*

3393 See Passport of the Federal Project 'Normative Regulation of Digital Environment' (n 201) point 01.01.003.001.

3394 See Report 2 NRU HSE <<https://sk.ru/foundation/legal/p/03.aspx>> accessed 3 March 2019 [the link to be detailed].

3395 *ibid.* 94.

be disproportionately high.³³⁹⁶ Finally, the researchers took the conceptual position that there was no need to introduce property rights to information, because the 'absolute protection provided by the property right does not meet the needs of free flow of information and fair use of data in public interests'.³³⁹⁷ The report suggests that an owner of industrial data can prevent unauthorized access to it by taking appropriate technical measures and can exchange such data with third parties relying on contract law.³³⁹⁸

Hence, industrial data is not covered by any special legal regime, but the provisions of the Passport of the National Program 'Digital Economy of the Russian Federation' can result in some legislative initiative or some solution connected to contract law as it is proposed by the above scholars.

Rights on Algorithms

Referring to the European experience, the issue of property rights on algorithms has been addressed by the researchers at the Max Planck Institute for Innovation and Competition who concluded that the existing limitations on copyright protection and patentability of algorithms used in data processing were justified by the need to ensure the free flow of information and effective competition in data markets. That means that there is no need to introduce a special protection of algorithms.³³⁹⁹

Similar to European law, the current Russian legislation allows limited protection of computer algorithms. According to the Civil Code computer programs are protected in the same way as copyrights to literary works, but algorithms are not covered by computer program copyright protection as they represent ideas and principles on which the program is based.³⁴⁰⁰ At the same time, computer programs are not patentable.³⁴⁰¹ Hence, the question is whether algorithms can be covered by patents. Some legal experts suppose that algorithms are patentable under existing Russian laws.³⁴⁰² Others claim that as AI becomes more developed, the algorithms, architecture and functionality of a computer program, rather than its source code, become more important and, therefore, can be potentially covered by the 'software' patents.³⁴⁰³ Referring to Russian

3396 *ibid* 95.

3397 *ibid* 96.

3398 *ibid* 97.

3399 Josef Drexel and others, 'Data Ownership and Access to Data: Position Statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate' (2016) 16-10 Max Planck Institute for Innovation and Competition Research Paper 1, 4-5 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2833165> accessed 3 March 2019.

3400 Articles 1259 and 1261 of the Civil Code of the Russian Federation.

3401 Article 1350(5) of the Civil Code of the Russian Federation.

3402 See for example, Kristina Zaytseva 'Possible Solutions for Legal Protection of Software' (Zuykov and Partners, 26 December 2017) <<https://zuykov.com/ru/about/articles/2017/12/26/vozmozhnye-varianty-pravovoj-ohrany-programmnogo-o/>> accessed 3 March 2019.

3403 See G.A.Akhmedov and others, 'Main Trends in the Development of Intellectual Property Rights These Days, Including New Intellectual Property Objects and Global Protection' (RVK, 2017) 56 <https://www.rvc.ru/upload/iblock/85d/Trends_in_Intellectual_Property.pdf> accessed 3 March 2019.

case law, the Court for Intellectual Property Rights in its decision on the case No. СИП-789/2016 dated 8 June 2018 stated that while computer program could not be patented, its algorithm could if it is represented as a consequence of actions on signals (material object) which leads to technical results performed by computational equipment as it constitutes a technical solution.³⁴⁰⁴

By the mid-2019 the Federal Project on Regulation envisages the adoption of amendments to the Civil Code and other Russian laws in order to modernize the rules for circulation of rights on computer programs.³⁴⁰⁵ The goal of this legislative initiative is to eliminate legal uncertainty regarding the circulation of rights, to clarify such terms as 'program' and 'software', to identify the key characteristics of circulation of rights on computer programs, to secure equal legal protection of different computer programs types, to provide freedom of parties to choose the type of contract for the circulation of rights on software used in cloud computing services.³⁴⁰⁶

According to Article 1(14) of the draft amendments to the Civil Code which are published on the Skolkovo website, Article 1350 ('The Conditions for Patentability of an Invention') should be expanded by adding a provision that a patentable invention may include a solution of a technical problem or an achievement of a technical result by performing a sequence of actions carried out with the help of computational equipment, including a computer program.³⁴⁰⁷ This amendment can be interpreted as being applied to algorithms.

13.2.3. Succinctly present the current regulatory framework in your jurisdiction

Author: Daria Kotova

The following succinct outline of the current regulatory environment in Russia includes description of the competition aspects of the regulations on electronic communications, access to data, digital consumer protection, and privacy and data protection. These regulations either directly aim at protecting competition or can have an impact on the competition when enforced.

The regulation of electronic communications is primarily based on the Law 'On Communications' and normative acts adopted on its basis.³⁴⁰⁸ This law contains provisions related to protection of competition in the communication markets, including access regulation and prices/rates regulation. Thus, Article 18 of the Law on Communications

3404 Decision of the Court for Intellectual Property Rights on the case No. СИП-789/2016 dated 8 June 2018 <<http://www.garant.ru/products/ipo/prime/doc/71864692/?prime>> accessed 3 March 2019.

3405 See Passport of the Federal Project 'Normative Regulation of Digital Environment' (n 201) Point 01.01.004.001.

3406 *ibid.*

3407 See the link 01.01.004.001 'Legislative Proposal to Amend Part 4 of the Civil Code' establishing the rules for circulation of rights to computer programs <<https://sk.ru/foundation/legal/p/04.aspx>> accessed 3 March 2019.

3408 The Federal Law 'On Communications' dated 7 July 2003 No. 126, <https://rg.ru/2003/07/10/svjaz-dok.html>, accessed 13 February 2019, and the Decree of the Government of the Russian Federation dated 28 March 2005 No. 161.

regulates granting the access to the shared communications network and provides for special contract terms in cases where a communications operator occupies a significant position in the shared communications network (hereinafter – ‘**Operator with Significant Position**’). Importantly, the definition of an Operator with Significant Position given in the Law on Communications differs from the dominant position described in competition law. An Operator with Significant Position is an operator that owns (including affiliates) not less than 25% of the installed capacity or has the ability to transmit not less than 25% of the traffic in a specific territory or in the entire territory of the Russian Federation.³⁴⁰⁹ This criterion is lower compared to the definition of dominance (which is presumed for the entities owning over 50% market share) in competition law.³⁴¹⁰ The Order of the Ministry of Digital Development, Communications and Mass Media dated 19 May 2005 No. 55 sets forth an additional form of control over Operators with Significant Position.³⁴¹¹ This order establishes the register of Operators with Significant Position maintained by a responsible executive body, which is the Federal Service for Supervision of Communications (Rossvyaznadzor).

Regarding access to communication networks, Article 19 of the Law on Communications clarifies requirements for Operators with Significant Position owning the shared communication network, in cases where other operators wish to access it. The general rule is that in order to prevent discrimination in the communications market, the Operator with Significant Position must offer the same conditions of entering the market (access to the shared communication network) as it does for its affiliated operators.³⁴¹² This Article also contains a number of restrictive and controlling provisions aimed at protecting the competition in the communications market. For instance, an Operator with Significant Position cannot refuse to enter into an agreement with an operator delivering similar services except for cases when access to the shared communications network contradicts the operator’s license or regulations on network integrity.³⁴¹³ An interesting example of the case where an Operator with Significant Position refused to deal with another operator unless certain conditions were included in the agreement is the case of *Sovintel v. CenterTelecom*. In this case, Sovintel complained to FAS of Russia that CenterTelecom, the Operator with Significant Position, insisted on including restrictive terms in the agreement that could limit Sovintel’s ability to transmit certain types of traffic. Although FAS of Russia found that CenterTelecom’s actions were in breach of the Federal Law ‘On Protection of Competition’, higher courts reversed this decision.³⁴¹⁴ The Supreme Commercial Court of the Russian Federation stated that FAS of Russia failed

3409 *ibid* Article 2 (11).

3410 Article 5 of the Federal Law ‘On Protection of Competition’ dated 26 July 2006 No. 135-FZ.

3411 Order of the Ministry of Information Technologies and Communication of the Russian Federation No. 55 dated 19 May 2005 <<https://rg.ru/2005/06/15/reestr-operatorov-dok.html>> accessed 13 February 2019.

3412 Article 19(1) of the Federal Law ‘On Communications’.

3413 *ibid* Article 19(2).

3414 Decision No. 2393/11 of the Presidium of the Supreme Commercial Court of the Russian Federation on the case No. A40-6002/10-154-15 dated 6 September 2011, <http://arbitr.ru/bras.net/f.aspx?id_casedoc=1_1_f4ae5c0e-b041-4a52-b23f-85ca67a5eab2>, accessed 28 February 2019. For the more detailed information on the case, please refer to the relevant individual fiche.

to prove abuse of dominance and pointed out that Operators with Significant Position were entitled to change access terms if required by the technological changes in the communications network.

To ensure non-discrimination in access terms, the Law on Communications provides further controlling mechanism. Thus, after an Operator with Significant Position establishes its terms for access to the shared communication network, it must publish these terms and send them to the relevant federal agency – the Ministry of Digital Development, Communications and Mass Media of the Russian Federation (hereinafter – **‘Ministry of Digital Development’**).³⁴¹⁵ In case of any discrepancy between the access terms of the Operator with Significant Position and the access rules adopted by the federal government, the Ministry of Digital Development can issue a warning, with which the Operator with Significant Position shall comply within 30 days. Finally, an Operator with Significant Position has 30 days to review other operators’ access applications and shall enter into an access agreement within 90 days from the receipt of an application. According to Article 20 of the Law on Communications, the prices for access communication services provided by Operators with Significant Position are regulated by the state through setting the maximum and (or) minimum prices for access and traffic transmission.³⁴¹⁶ All these restrictions and control measures are aimed at preserving non-discriminatory environment in the market of electronic communications in Russia.

Interoperability of the communications networks is set, *inter alia*, in Article 12 of the Law on Communications, which defines what constitutes the single telecommunication network of electronic communications in the Russian Federation, and what are organizational and technical requirements for operators of all categories of communication networks aimed at its integral and stable functioning.³⁴¹⁷ In particular, operators of the shared communication network should preserve its integrity. The latter means ‘the ability of its network components to interact, which enables to establish a connection and (or) transfer information between users of the relevant communication services’³⁴¹⁸ (i.e. interoperability of all components of the shared network). The shared communication network integrity is implemented through, *inter alia*, ‘compatibility of interaction protocols (interoperability) and compatibility of electrical and/or optical interfaces (physical compatibility) of communication facilities’.³⁴¹⁹ Interoperability and physical compatibility

3415 For the purposes of Article 19 of the Federal Law ‘On Communications’, the relevant power is conferred to the Ministry of Digital Development, Communications and Mass Media of the Russian Federation. The Ministry has the competence over the functioning of electronic communications according to the Statute on the Ministry of Digital Development, Communications and Mass Media adopted by the Decree of the Government of the Russian Federation No. 418 dated 2 June 2008 <<https://digital.gov.ru/uploaded/files/polozhenie-o-minkomsvyazi.pdf>> accessed 28 February 2019.

3416 See Paragraph 3 of the ‘State Regulation of Prices for Access and Traffic Transmission Services Provided by Operators Occupying Significant Position’ approved by the Decree of the Government of the Russian Federation dated 19 October 2005 N 627.

3417 Article 12 of the Federal Law ‘On Communications’.

3418 Paragraph 2 of the ‘Requirements for Organizational and Technical Support of Stable Functioning of the Shared Communication Network’ approved by the Order of the Ministry of Information Technologies and Communication of the Russian Federation dated 27 September 2007 No.113 <<http://base.garant.ru/192047>> accessed 14 March 2019.

3419 *ibid* para 3.

is ensured by complying with the requirements established in the rules of use of communication devices,³⁴²⁰ set forth by the relevant federal agency.³⁴²¹

Access and interoperability rules are strengthened by the so-called 'rules of non-discriminatory access' issued by the Government of the Russian Federation and developed with the participation of FAS of Russia. For instance, the Decree of the Government of the Russian Federation dated 29 November 2014 No. 1284 establishes the rules with respect to electronic communications infrastructure.³⁴²² This Decree defines non-discriminatory access to infrastructure as equal infrastructure access for all users regardless of their legal status or relation to the infrastructure owner. However, non-discriminatory access permits the use of differentiated access terms when differentiation is technologically and economically justified.

In principle, the owner cannot deny access to infrastructure to any user given the owner has the necessary economic and technological capabilities.³⁴²³ Access to infrastructure cannot be bundled with other paid services or access to any other object of infrastructure.³⁴²⁴ In addition, the owner must set equitable rates for all infrastructure users although these rates can be differentiated depending on the number of infrastructure objects, period of their use and technological characteristics of access.³⁴²⁵ All violations of the above rules are subject to the competition authority's review. In addition, general rules of non-discriminatory access to infrastructure may soon be supplemented by the rules of access to infrastructure placed in residential buildings. This might solve the issue of house management companies restricting the access to telecommunication infrastructure within residential buildings, which leads to significant differences in prices for telecommunication services. The relevant proposal is under discussion in the State Duma.³⁴²⁶

As for network neutrality, this principle is not formally established in Russia yet, although debates on network neutrality are ongoing. For instance, the Council on Data Economy recommended formalizing this principle in law. Its proposal was upheld by FAS of Russia.³⁴²⁷ More precisely, FAS of Russia developed network neutrality principles to ensure its smooth application in the market.³⁴²⁸ These principles included non-discriminatory treatment of data, information or applications regardless of whether they are originated by an operator, its affiliates or third parties, as well as cooperation between mar-

3420 *ibid* para 5.

3421 Pursuant to Article 41 of the Federal Law 'On Communications'.

3422 The 'Rules of Non-discriminatory Access to Infrastructure for Placement of Telecommunication Networks' approved by the Decree of the Government of the Russian Federation dated 29 November 2014 No. 1284.

3423 *ibid* para 18.

3424 *ibid*.

3425 *ibid* para 38 and 40.

3426 Proposal No. 61471-1, <http://sozd.duma.gov.ru/bill/614271-7?fbclid=IwAR0w4Gc2PR9dN_KqZIk-IGQK9wH12p-60TR7IDdNRXaCT11kDDDZu-UoDh0> accessed 28 February 2019.

3427 Yulia Tishina, Roman Rozhkov, 'Traffic Without Brakes. Russia May Adopt the Network Neutrality Principle' (Kommersant, 6 August 2018) <<https://www.kommersant.ru/doc/3706558>> accessed 28 February 2019.

3428 'FAS Developed Basic Document on Network Neutrality Principles in the Russian Federation' <<https://fas.gov.ru/publications/1630>> accessed 28 February 2019.

ket actors aimed at satisfying consumer demand and reasonable control of traffic.³⁴²⁹ However, the Russian government later rejected the initiative since, in their view, the antimonopoly regulation already had efficient instruments to deter discrimination in the communications market (for example, prohibition of unfair competition and abuse of dominance).³⁴³⁰ Therefore, absent specific regulation, competition law is currently in charge of ensuring non-discriminatory treatment of all internet traffic in Russia.

As for **the access to data, access to algorithms/smart data** and the **general use of algorithms**, there is currently no specific regulations in Russia. The general legal framework includes the Federal law 'On Information, Information Technologies and the Protection of Information' dated 7 July 2006 No. 149-FZ (hereinafter – '**Law on Information**') that provides the general regulation of data flows in Russia. For instance, Article 10.3 of the Law on Information regulates the obligations of search engines, Article 10.1 regulates the activity of the so-called 'organizers of information dissemination',³⁴³¹ which include web-sites and other resources that have been added to a special register by the Federal Security Service. Other provisions of the said law regulate the obligations of news aggregators (Article 10.4), overall dissemination of information (Article 10) and certain cases of restriction of access to the information disseminated in breach of intellectual property rights and data protection requirements. This law is supplemented by a variety of executive acts that further clarify its implementation.

Nonetheless, even without explicit legislative provisions, Russian authorities understand importance of these technological developments for the digital economy as emphasized in the National Programme.³⁴³² Thus, the objective to conceptualize a regulatory toolkit for the new digital economy may include the regulation of digital technologies relevant for the competition.³⁴³³ An example of such regulatory change is the initiative to amend the current Federal Law 'On Protection of Competition' to include provisions on pricing algorithms and network effects generated by digital platforms.³⁴³⁴

Interestingly, despite the move towards regulation of new digital technologies, the Administration of the Russian President has raised concerns about self-regulation of Big Data as proposed by the industry and favored the state regulation to ensure stronger protection against data-driven monopolization.³⁴³⁵

3429 Reasonable control of traffic means that traffic can be managed in certain cases. For instance, control of traffic can be used in cases of emergencies and overloads, to prevent cyber-attacks, to preserve security of communication and of personal data and also in cases addressed in federal laws.

3430 Valery Kodachigov, 'The Government Will Not Legislatively Defend Network Neutrality' Vedomosti (Moscow, 28 October 2018) URL: <https://www.vedomosti.ru/technology/articles/2018/10/28/784901-pravitelstvo-zakonodatelno-zaschischat-neitralnost>, accessed 25 February 2019.

3431 This category of web-resources was introduced by an amendment to a number of federal laws and regulations in 2016 as a part of a greater reform of Russia's Internet law aimed at restricting the Internet environment for the sake of national security. According to these regulations, organizers of information dissemination must keep the information on user communication for one year and provide access to this information to the specified national security authority.

3432 Passport of the National Program 'Digital Economy of the Russian Federation' (n 65).

3433 *ibid.* 1.19.

3434 See Section 2.6. 'Recent and Ongoing Reforms of Competition Law'.

3435 Svetlana Yastrebova, 'Presidential Administration Insists on Big Data Regulation' Vedomosti (Moscow, 21 Novem-

An example of problems caused by the lack of access to data regulation is the recent litigation between Vkontakte and DOUBLE (see Section 'Rights on Databases' of this Report). The official stance of the courts in this case may have important repercussions for access to data in the digital markets as granting to the database owner an exclusive right to data created by users may serve as a significant barrier to competition.

Digital consumer protection is mainly provided by the Federal law 'On the Protection of Consumers Rights' dated 7 February 1992 No. 2300-1.³⁴³⁶ This law was amended in 2018 in order to include consumer protection obligations for online aggregators that engage in b2c sales of goods and services.³⁴³⁷ The amended law obliges both aggregators and sellers to provide the certain information (such as name, address, working hours, etc.) to consumers.³⁴³⁸ In addition, Article 26.1 of the said law regulates consumer protection applicable to online sales. This provision is strengthened by the Decree of the Government of the Russian Federation dated 27 September 2007 No. 612 that further elaborates on protection of consumers rights in e-commerce.³⁴³⁹ In particular, sellers must give consumers the basic information about the good upon delivery,³⁴⁴⁰ provide information about the good they sell remotely.³⁴⁴¹ In addition, consumers have certain ways of protecting their rights in case of delivery issues.³⁴⁴²

Apart from the general consumer protection regulation, rights of digital consumers can be protected through specific instruments designed for digital markets. Thus, consumer rights in the market of telematics communications are protected by the binding rules issued in compliance with the law on consumer protection.³⁴⁴³ These rules specify the procedural and material aspects of a contract concluded between an operator and a consumer and thoroughly regulate the prices (tariffs) of the services of telematics communications. They also deal with the issue of spamming by obliging operators and consumers to prevent dissemination of spam messages through their infrastructure or, for consumers, through their user terminals. Similar rules are set forth for consumer protection in the market of non-internet communications.³⁴⁴⁴

ber 2018) < <https://www.vedomosti.ru/technology/articles/2018/11/21/787110-administratsiya-nastaivaet-gos-regulirovanii-bolshih-dannih>> accessed 28 February 2019.

3436 Law 'On Protection of Consumers' Rights' dated 7 February 1992 No.2300-1, <<https://rg.ru/2008/12/01/pravapotr-dok.html>> accessed 14 February 2019.

3437 *ibid* Articles 9, 12.

3438 According to Article 9 (1.2) of the Law 'On Protection of Consumers Rights', consumers must be provided with the information about aggregators and sellers that use the online aggregator platform.

3439 The Decree of the Government of the Russian Federation dated 27 September 2007 No.612 <<https://rg.ru/2007/10/03/distancia-prodaja-dok.html>> accessed 14 February 2019.

3440 *ibid* Article 9.

3441 *ibid* Article 17.

3442 *ibid* Articles 22-29.

3443 The Decree of the Government of the Russian Federation dated 10 September 2007 No.575 'On Approval of the Rules for the Provision of Telematics Communication Services' <<https://rg.ru/2007/09/25/svyaz-pravila-dok.html>> accessed 15 February 2019.

3444 The Decree of the Government of the Russian Federation dated 23 January 2006 No.32 'On Approval of the Rules for the Provision of Data Transmission Services' <<https://rg.ru/2006/02/03/svyazj-pravila-dok.html>> accessed 15 February 2019.

Furthermore, the Federal law 'On Advertising' dated 13 March 2006 No. 38-FZ regulates advertising practices with the view to preventing violation of consumer rights while safeguarding competition that can be seriously compromised by unfair advertising. Thus, the law prohibits certain advertisements that can be considered as an act of unfair competition, as well as false advertisements.³⁴⁴⁵ In case of advertising via phone, Internet or radio communication, advertisements can only be transmitted with the user's prior consent.³⁴⁴⁶ Automated calling and automated distribution of advertising are prohibited.³⁴⁴⁷ The law grants certain supervisory powers over advertising to FAS of Russia, which has delivered its opinion on the antimonopoly aspects of advertising in digital markets in the numerous informational letters.³⁴⁴⁸ Moreover, the competition authority has often imposed fines for violations of the Federal law 'On Advertising' in the digital markets. For instance, in August 2018, FAS of Russia found major telecom operators and online shops in breach of the Federal Law 'On Advertising' for unlawful use of instant messaging in advertising.³⁴⁴⁹ Taxi aggregator Yandex was fined in 2018 for false advertising. The company advertised the low price for a taxi drive, while the text of advertisement clarified in the small low-case font that the advertised price included just provision of a taxi cab, but not the actual drive.³⁴⁵⁰

Privacy and data protection in Russia are mainly covered by the Law On Personal Data that provides the normative basis for the process of personal data collecting, storing and processing.³⁴⁵¹ This law has a special provision that data processing aimed at goods and services promotion is lawful only with the prior consent of the subject of personal data.³⁴⁵² This may prevent companies from purchasing user databases and obtaining personal data to use it for promoting their business.

This is illustrated by a lawsuit where the National Bureau of Debt Records collected data from social media to detect potential consumers of its financial services. However, the data was collected without the prior consent of data subjects and the regulator issued a warning. This warning was appealed by the National Bureau of Debt Records, but the appeal was rejected. The Supreme Court of the Russian Federation confirmed lower courts' rulings that the respondent violated the law on personal data³⁴⁵³ and agreed

3445 Article 5 of Federal Law dated 13 March 2006 No.38-FZ 'On Advertising' <<https://rg.ru/2006/03/15/reklama-dok.html>> accessed 15 February 2019.

3446 *ibid* Article 18(1).

3447 *ibid* Article 18(2).

3448 See, for example, the Letter of FAS of Russia 'On Advertising Transmitted Through Electronic Communications Networks with the Use of SMS-messaging' dated 13 April 2015 No. AK/65823/17; the Letter of FAS of Russia 'On Advertising Transmitted through the "WhatsApp" Application' dated 13 April 2015 No. AK/17762/15.

3449 FAS of Russia Press Release, 'Beeline Breached the Law "On Advertising" Four Times in August', <https://fas.gov.ru/publications/16390>, accessed 28 February 2019.

3450 FAS of Russia Press Release, 'FAS Fined "Yandex Taxi" for False Advertising' <<https://fas.gov.ru/news/26318>> accessed 28 February 2018.

3451 The Federal Law 'On Personal Data' dated 7 July 2006 No. 152-FZ <<http://pravo.gov.ru/proxy/ips/?docbody=&nd=102108261>> accessed 28 February 2019.

3452 *ibid* Article 15.

3453 Order of the Supreme Court of the Russian Federation No. 305-KG17-21291 on case No. A40-5250/2017 dated 29 Janu-

with the lower court's reasoning that the data published in social media do not become automatically available to anyone.³⁴⁵⁴ This case illustrates the potential that data protection legislation has for Russian emerging digital economy and, at the same time, calls for a legislative watershed between the lawful and unlawful use of personal data for marketing purposes, especially, in the light of the crucial role that personal data play for competition in the digital markets.

Competition considerations are embedded in many regulations in Russia that govern various aspects of digital economy and digital markets. While some of the recent technological developments, such as Big Data or AI, are not expressly regulated by the state yet, the potential of state regulation of the nascent areas of digital economy is subject to ongoing discussion. Importantly, the national competition authority often takes a lead in this discussion and comes up with proposals on the most cutting-edge aspects of digital competition.

13.2.4. Institutional architecture

The institutional architecture of the digital economy regulation in the Russian Federation was initially shaped by the State Programme "Digital Economy of the Russian Federation" adopted by the Decree of the Government of the Russian Federation dated 28 July 2017 № 1632-p, further repealed³⁴⁵⁵ and substituted with the Passport of the National Programme 'Digital Economy of the Russian Federation' (the '**National Programme**').³⁴⁵⁶ The National Programme does not indicate a specific digital platforms regulator, but specifies that the Ministry of Digital Development leads the implementation of the National Programme. The Government of the Russian Federation further allocated the specific functions on implementation of this Programme among several agencies, with the main responsibility assigned to the Ministry of Economic Development of the Russian Federation (hereinafter – '**Ministry of Economic Development**') and the Ministry of Digital Development.³⁴⁵⁷

Ministry of Digital Development is the federal executive body subordinate to the Government of the Russian Federation and responsible for implementation of "Digital Technologies", "Digital State Governance", "Information infrastructure" and "Information security" sections of the National Programme. Its key responsibilities include regulation in the following areas:

- information technology (including creation of state information resources and providing access to them);
- telecommunications and postal services;

ary 2018.

3454 Decision of the 9th Court of Appeals No. 09АП-31744/2017 on case No. A40-5250/17 dated 27 July 2017.

3455 The Decree of the Government of the Russian Federation dated 12 February 2019 №195-p.

3456 Adopted by the protocol of the Presidium of the Presidential Council for Strategic Development and National Projects dated 24 December 2018 No. 16.

3457 The Decree of the Government of the Russian Federation dated 02 March 2019 №234.

- mass communications and mass media, including electronic (such as the internet, television (including digital) and radio broadcasting and new technologies in these areas);
- printing and publishing industry;
- personal data processing.³⁴⁵⁸

Ministry of Digital Development has extensive powers in the IT-area and monitoring of the internet safety. The Ministry is also responsible for digitalization of state institutions and national corporations, creation of public informational platforms and promotion of equal access to informational platforms in other industries, and creation of the common digital trust environment in the EEU and the CIS countries.³⁴⁵⁹ The Deputy Minister of Digital Development has proclaimed that “the main function of the ministry is to create favourable environment for the digital transformation, not to exercise control and supervision”.³⁴⁶⁰

Ministry of Economic Development is the federal executive body subordinate to the Government of the Russian Federation and responsible for implementation of “Normative Regulation of the Digital Environment” and “Personnel for Digital Economy” sections of the National Programme. It has a wide range of powers including formalization of the whole package of new regulations in the field of digital economy. The Ministry is responsible for general coordination of all emerging areas of the new economy and, as of the end of 2017, planned to draft more than 50 bills related to creating a common digital trust environment; regulation of data protection; introduction of innovation to financial markets including regulation of cryptocurrencies and digital assets; regulation of crowdfunding and crowdinvesting activities using investment platforms; introduction of economic and tax incentives for companies driving economic digitalization, etc.³⁴⁶¹

The consumer protection in the field of digital economy falls within the competence of the **Federal Service for Supervision of Consumer Rights Protection and Human Welfare** (hereinafter – ‘**Rospotrebnadzor**’), which is accountable to the Government of the Russian Federation. Rospotrebnadzor conducts systematic work aimed at improving consumer protection in the new realities of the digital world, both at the national level and at international fora. This includes drafting and applying legislation regarding the regulation of platforms that aggregate information about goods or services,³⁴⁶² as well as devising common approaches to consumer protection in the context of e-commerce

3458 Ministry of Digital Development, Communications and Mass Media: Activity Areas, <<https://digital.gov.ru/ru/activity>> accessed 25 January 2019.

3459 *ibid.*

3460 Press release ‘Evgeny Kislyakov: “The Ministry of Communications and Mass Media will help state-owned companies ensure the digital transformation process”’ (29 November 2018) <<https://digital.gov.ru/ru/events/38634>> accessed 25 January 2019.

3461 Press release ‘The Ministry of Economic Development of Russia will develop a legislative foundation for the Digital Economy program’ (18 December 2017) <<http://economy.gov.ru/minrec/press/news/2017181201>> accessed 28 January 2019.

3462 Amendment of the Law of the Russian Federation ‘On Protection of Consumer Rights’ enacted by the Federal Law dated 29 July 2018 N 250-FZ.

in the EEU and the CIS countries. The main focus of Rospotrebnadzor is increasing the level of protection of consumer rights online.³⁴⁶³ To implement this, Rospotrebnadzor has a number of powers, including conducting sector inquiries, formal investigations and imposing sanctions against enterprises violating consumer protection law.³⁴⁶⁴ Thus, in 2017 Rospotrebnadzor conducted inquiry into 1000 most popular online shops in Russia, which revealed that over 25% of the online retailers has violated at least one of the consumer protection requirements.³⁴⁶⁵

The **Ministry of Finance of the Russian Federation** is another federal executive body accountable to the Government of the Russian Federation, which is responsible for the regulation of the use of digital technologies in the financial sector.³⁴⁶⁶ For example, together with the Central Bank it prepared the bill 'On Digital Financial Assets' that is intended to regulate issuance and circulation of crypto assets, as well as establish procedural requirements for ICO and protection of the rights of investors in crypto assets.³⁴⁶⁷

The **Central Bank of the Russian Federation** is an independent public institution, not subordinate to the government, and has as its objectives ensuring the stability of the rouble; development and strengthening of the banking system of the Russian Federation; ensuring stability and development of the national payment system; development of the financial market of the Russian Federation and ensuring its stability.³⁴⁶⁸ In February 2018 the Central Bank issued an extensive document 'The Main Directions of Development of Financial Technologies for the Period 2018-2020'.³⁴⁶⁹ According to this document, the main objectives of the Central Bank in this area are 'promoting competition in the financial markets, improving the availability, quality and range of financial services, reducing risks and costs in the financial sector, as well as improving the competitiveness of Russian technologies in general'.³⁴⁷⁰ According to this programme, the Central Bank will perform:

3463 Rospotrebnadzor Communication 'On Improving the Protection of Online Consumer Rights' (03 March 2018) <http://www.rospotrebnadzor.ru/about/info/news/news_details.php?ELEMENT_ID=9689> accessed 29 January 2019.

3464 The Regulations on the Federal Service for Supervision of Consumer Rights Protection and Human Welfare adopted by the Decree of the Government of the Russian Federation dated 30 June 2004, No. 322.

3465 The State Report on Protection of Consumer Rights in the Russian Federation for 2017, 183 <http://rospotrebnadzor.ru/upload/iblock/285/gd-zpp_2017.pdf> accessed 25 January 2019.

3466 According to the Regulation on the Ministry of Finance of the Russian Federation adopted by the Decree of the Government of the Russian Federation dated 30 June 2004 N 329, the Ministry of Finance is responsible for regulation in the field of, inter alia, budget, tax, insurance, foreign exchange, banking, financial markets, etc. See also Press release 'A meeting of the Public Council on the regulation of the use of digital technologies in the financial sector was held at the Ministry of Finance of Russia' <https://www.minfin.ru/ru/press-center/?id_4=34978> accessed 26 January 2019.

3467 'Ministry of Finance presented a bill on the regulation of digital assets' TASS news (Moscow, 25 January 2018), <<https://tass.ru/ekonomika/4901634>> accessed 29 January 2019; the bill 'On Digital Financial Assets' dated 25 January 2018 <http://www.minfin.ru/ru/document/?id_4=121810&area_id=4&page_id=2104&popup=Y> accessed 29 January 2019.

3468 Official web site of the Central Bank, 'Legal status and functions of the Bank of Russia' <<https://www.cbr.ru/today/bank-status>> accessed 30 January 2019.

3469 <http://regulation.nprts.ru/ru/upload/on_2018_2020.pdf> accessed 25 January 2019.

3470 *ibid* 6.

- regulation of the new financial technologies (including creation of the ‘special regulatory platforms’ (a sort of ‘sandbox’);
- research, analysis and suggestions for application of new technologies like Reg-Tech, SupTech, Big Data and Smart Data, DLT, AI, mobile technologies, open APIs, etc.;
- creation and development of the financial infrastructure (including platforms for remote identification, fast payments, a platform-marketplace for financial products and services, as well as new platforms based on distributed ledgers and cloud technologies);
- transition to electronic interactions between the central bank, other public bodies and participants of financial markets, including more extensive use of a digital signature;
- ensuring safety and sustainability in the application of financial technologies, etc.³⁴⁷¹

To summarize, Russian digital landscape is characterised by a plethora of sectorial regulators, each devoted to its specific domain of expertise, with their powers sometimes vague and overlapping. Therefore, coordination through working groups and interdepartmental meeting bears special importance in regulating the nascent digital economy.³⁴⁷²

The **Federal Antimonopoly Service of the Russian Federation** (**‘FAS of Russia’**) as a national competition authority plays a prominent role in monitoring and ensuring the protection of competition in the digital markets. The task of FAS of Russia is protection of competition and creation of favourable conditions for competition in the digital markets.³⁴⁷³ This task is performed through various instruments including investigation of abuse of dominance and concerted practices; control on economic concentration; control on the fairness and transparency of the actions and agreements of public authorities; etc. In addition, it performs control over the public procurement procedures (including electronic tenders) and oversees compliance with the regulations on advertising activities, including those performed online.³⁴⁷⁴

In the digital age FAS of Russia is updating its institutional framework, for example, by introducing the novel institute of a “trustee” in the ‘Fifth antimonopoly package’.³⁴⁷⁵ This is an organisation independent from both FAS Russia and the company, which helps

³⁴⁷¹ *ibid* 6-7.

³⁴⁷² TAdvisor, ‘Who and how controls development of the digital economy’ <www.tadviser.ru/index.php/Статья:Кто_и_как_управляет_развитием_цифровой_экономики> accessed 02 February 2019.

³⁴⁷³ Mission of the FAS Russia at <<https://fas.gov.ru/pages/about/mission.html>> accessed 26 January 2019; ‘Regulations on the Federal Antimonopoly Service of the Russian Federation’ adopted by the Decree of the Government of the Russian Federation dated 30 June 2004 No. 331.

³⁴⁷⁴ *ibid*.

³⁴⁷⁵ See, ‘The Fifth Package Got a “D”: Ministry of Economic Development Criticized the Strengthening of Antimonopoly Regulation of Runet’ RBC (05 October 2018) <www.rbc.ru/newspaper/2018/10/08/5bb60cec9a7947847bda74d1> accessed 05 February 2018.

the company comply with the requirements of the competition authority (mostly as a condition of approval of the economic concentration, as well as in abuse of dominance cases).³⁴⁷⁶ The institute of a trustee can be described as one of the forms of monitoring of antitrust compliance.³⁴⁷⁷ Though the institute of a trustee is not set forth on the legislative level yet, the first case of an independent expert's involvement in execution of the antimonopoly decision is *Bayer / Monsanto* merger. The transfer of technology in this case is coordinated by the Center for Technological Transfer on the basis of the Higher School of Economics.³⁴⁷⁸

The **courts of the Russian Federation** play an important role in application of competition law and sector-specific regulations through individual cases review and general interpretation of normative acts, with the power to strike down any normative or administrative act which is not compliant with the Russian law or the Constitution.³⁴⁷⁹ The Supreme Court of the Russian Federation is the highest judicial body for resolution of economic disputes, civil, criminal, administrative and other cases, which performs the final judicial review of the activities of lower courts and gives clarifications on judicial practice.³⁴⁸⁰ It often has the final say in the competition-related disputes that further shapes the position of the competition authority.³⁴⁸¹

Interaction between Competition Law and Regulation in the Digital Economy Context

Each above-mentioned sectorial regulator is entrusted with promoting competition in their domain while achieving their specific regulatory objectives. According to Part 1 of Article 15 of the Federal law 'On Protection of Competition', federal executive bodies, regional and local state bodies are prohibited from adoption of acts and (or) performing actions that lead or may lead to prevention, restriction, elimination of competition, with exceptions set forth by federal laws. Therefore, the sector-specific regulations adopted by the federal executive bodies (e.g. the Ministry of Digital Development or the Central Bank) should be compliant with antimonopoly law. In the meantime, FAS of Russia plays a special role in this process, as it aims at promoting the competition in all fields of the digital economy and shall ensure that regulations are aligned with this aim. Pursuant to the Federal law 'On Protection of Competition', FAS of Russia supervises compliance of

3476 Alexey Ivanov and Elena Voinikanis, 'Trustee and Antitrust Regulations of Digital Economy' (2018) No. 07 Zakon <https://zakon.ru/publication/igzakon/7561> accessed 25 February 2019 (Алексей Иванов, Елена Войниканис, Институт доверенного лица и антимонопольное регулирование цифровой экономики // Закон. 2018. №07).

3477 *ibid.*

3478 Prescription of FAS Russia based on consideration of the application of the company "Bayer AG" dated 20 April 2018 № ИА/28184/18, <<https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/ia-28184-18>> accessed 04 February 2018.

3479 Chapter 24 of the Commercial Procedural Code of the Russian Federation; Part 2 of Article 1, Chapter 21 and 22 of the Administrative Procedural Code of the Russian Federation.

3480 Article 126 of the Constitution of the Russian Federation; Article 19 of the Federal Constitutional Law dated 31 December 1996 No. 1-FKZ 'On the Judicial System of the Russian Federation'.

3481 See, for example, Resolution of the Supreme Court of the Russian Federation dated 9 November 2015 on the case N A40-42997/2014 Teva Pharmaceutical Industries Limited v FAS Russia.

the above mentioned public bodies with the requirements of antimonopoly legislation and can issue mandatory requirements to the public bodies to repeal or amend the acts (both normative and individual) that lead to violation of antimonopoly legislation.³⁴⁸² Said that, these requirements of FAS of Russia do not render the acts of regulators void, but serve to make regulators repeal or amend the said acts on the voluntary basis. Other wise, FAS of Russia is entitled to bring an action to court which has the ultimate power to strike down anticompetitive acts of the public bodies.³⁴⁸³

Meanwhile, FAS of Russia actively interact with the regulators to ensure promotion of competition in the relevant sectors of the digital economy. For example, in 2018-2020, FAS of Russia and the Ministry of Digital Development shall provide creation of the innovation infrastructures in the field of communications based on principles of non-discriminatory requirements for all market participants.³⁴⁸⁴ By April 2019, the Ministry of Digital Development shall set requirements for communication devices (like smart-phones and computers) to provide full removability of the pre-installed programs (applications), except mandatory service apps, that will ensure the vigorous competition on the market of user applications.³⁴⁸⁵ As another example, FAS of Russia together with the Ministry of Finance and the Ministry of Digital Development shall ensure creation and functioning of fast payment platforms with the view to promote competition in payment services markets and reduce the interbank barriers during money transfers.³⁴⁸⁶

As we can see, FAS of Russia performs both *ex-ante* coordination of policies with the sector-specific regulators, as well as *ex-post* control over their compliance with antimonopoly rules.

In accordance with paragraph 1 of Article 23 of the Federal Law dated 27 July 2006 No. 152-FZ 'On Personal Data' and paragraph 1 of the Regulation on the Federal Service for Supervision of Communications and Mass Media (**'Roskomnadzor'**),³⁴⁸⁷ Roskomnadzor is the authorized body in the field of personal data protection, which is charged with control and supervision of compliance of personal data processors with requirements of the Federal Law 'On Personal Data'. Roskomnadzor has the right to conduct inquiries of data processors; require correction, blocking or elimination of the personal data which is inaccurate or obtained illegally; block access to the information violating the law on personal data and impose administrative sanctions for violation of this law.³⁴⁸⁸ In 2013 FAS of Russia and Roskomnadzor entered into an agreement on cooperation between them, including control over compliance of personal data processing with the

3482 Paragraph 1 of Article 22 and Paragraph 3(a) of Part 1 of Article 23 of the Federal law 'On Protection of Competition'.

3483 See the Decision of the Constitutional Court of the Russian Federation dated 3 April 2012 N 630-O.

3484 Paragraph 7 of the Road Map on the development of competition in the industries of the Russian Federation and the transition of certain natural monopolies from the state of the natural monopoly to a competitive market state for 2018 – 2020, adopted by the Decree of the Government of the Russian Federation dated 16 August 2018 № 1697-p.

3485 *ibid* 54.

3486 *ibid* 96.

3487 Adopted by the Decree the Government of the Russian Federation dated 16 March 2009 No. 228.

3488 Paragraph 3 Article 23 of the Federal Law dated 27 July 2006 No. 152-FZ 'On Personal Data'.

requirements of the legislation of the Russian Federation.³⁴⁸⁹ Despite of this, we could not find any past cases on personal data involving both public agencies.

The nature of FAS of Russia competence is focused primarily on protection of competition in markets, including preventing monopolisation and unfair competition. However, consumer protection is one of the most important derivative results of the FAS activities.³⁴⁹⁰ FAS of Russia does not function as a consumer protection authority (which is Rospotrebnadzor), but consumer welfare is implicitly embedded into its toolkit, especially when it refers to assessment of abuse of dominance and the area of tariff (price) regulations. Thus, according to paragraph 1 of Article 10 of the Federal law 'On Protection of Competition' FAS of Russia should deal with abuse of dominance affecting the whole market and general consumer welfare, but not abuse of power in the individual relationships. Since 2016 (the amendment to the Article 10 of the Federal law 'On Protection of Competition'), FAS of Russia is responsible for investigation of abuse of dominance based on violation of the rights of *indefinite number of consumers*, while Rospotrebnadzor should investigate complaints of consumers on the infringement by a dominant undertaking of their personal rights in connection with the performance of contractual or pre-contractual obligations.³⁴⁹¹ This was an important step in delineation of powers between FAS of Russia and Rospotrebnadzor, which had often overlapped in the past.³⁴⁹²

Meanwhile, FAS of Russia and Rospotrebnadzor work in close cooperation, including at the international level. In 2012 the heads of two agencies signed the Memorandum of Cooperation between the Consultative Council for the Protection of Consumer Rights of the CIS Member States and the Interstate Council on Antimonopoly Policy, where they agreed on exchange of information and joint investigation of the problems that present mutual interest.³⁴⁹³ FAS of Russia and Rospotrebnadzor have launched a number of coordinated investigations in the retail sector; however, currently most of the cases on digital consumer protection are investigated by Rospotrebnadzor.³⁴⁹⁴

Interaction between competition law and IP rights

In the Russian Federation, IP rights currently enjoy exemption from competition law. According to the Federal law 'On Protection of Competition', competition law requirements do not apply to the exercise of IP rights and agreements related to transfer of IP

3489 Press release 'FAS and Roskomnadzor Entered into the Agreement on Cooperation' (13 November 2013) <https://fas.gov.ru/news/7402> accessed 25 January 2019.

3490 Press release, 'Protection of the Rights of Consumers of Financial Services during Implementation of Antimonopoly Policy' (4 July 2016) <<https://fas.gov.ru/news/3654>> accessed 30 January 2019.

3491 Letter of the Federal Antimonopoly Service dated 28 December 2015 No. SP/75571/15 'On sending clarifications'.

3492 'Two Sitting on One Chair: FAS and Rospotrebnadzor Have Overlapping Competence' (15 February 2012), <<http://www.arbitr.ru/press-centr/smi/45020.html>> accessed 30 January 2019.

3493 Press release 'Memorandum on Cooperation Is Signed Between the Consultative Council for the Protection of the Rights of the Consumers of the CIS Member States and the Interstate Council on Antimonopoly Policy' (17 December 2012), <<https://fas.gov.ru/news/8377>> accessed 29 January 2019.

3494 The State Report on Protection of Consumer Rights in the Russian Federation for 2017 (n 308).

rights.³⁴⁹⁵ These provisions hinder the effective application of competition law to many aspects of digital economy, which are protected by IPR. They have been severely criticised by the Russian competition authority³⁴⁹⁶ and academics, who pointed that competition law should facilitate IP dispersion and prevent the anticompetitive practices based on the monopolistic exploitation of the IP.³⁴⁹⁷

Moreover, there is a danger of excessively wide application of such provisions to transfer of goods, which have been manufactured using the IPR protected technologies. In this respect FAS of Russia stands on the position that competition law should be applied to the actions of an undertaking abusing its dominant position in the product market even if such product/technology is covered by IPR protection – the position upheld by the Supreme Court of the Russian Federation in the *Teva v FAS of Russia* case.³⁴⁹⁸

On top of this, FAS of Russia suggests using compulsory licensing as an instrument to protect competition from abuse of IPR-holders. Currently, the Civil Code contains the instrument of compulsory licensing, but only based on claims of private parties.³⁴⁹⁹ However, the case law on compulsory licensing is virtually absent.³⁵⁰⁰ The bill proposed by FAS of Russia suggests amending Article 1360 of the Civil Code that will allow the Government to permit the use of IPR without consent of the right-holders not only in the interests of state defense and security (as it is now), but also for protection of life and safety.³⁵⁰¹ This will essentially allow to extend compulsory licensing institute to the pharmaceutical industry. Moreover, FAS of Russia considers using IPR licensing as a condition of approval of an economic concentration involving IPR-protected technology, with the first cases of technology transfer requirement already in place (Bayer-Monsanto and Schlumberger-Eurasia Drilling Company).³⁵⁰²

FAS of Russia has been actively promoting amendments to the antimonopoly legislation aimed at lifting antitrust immunity for action and agreements regarding IPR (for examples, license agreements). Initially these provisions were included in the fourth and fifth “antimonopoly packages”, but FAS of Russia has removed them upon severe criticism from the business expert community.³⁵⁰³ The criticism of lifting IPR antitrust

3495 Part 4 of Article 10 and part 9 of Article 11 of the Federal law ‘On Protection of Competition’.

3496 Press release ‘FAS Set about the Intellect’ (29 November 2018) <<https://fas.gov.ru/publications/17041>> accessed 29 January 2019.

3497 See ‘Challenges to Antitrust in a Changing Economy: Summary Remarks’ (Harvard Law School, 9 November 2018) 7; Joseph Stiglitz, ‘Competition and Consumer Protection in 21st century’ (21 September 2018) slide 22 <www8.gsb.columbia.edu/faculty/jstiglitz/sites/jstiglitz/files/Stiglitz%20FTC%20Hearing%20PPT%20FINAL.pdf> accessed 18 December 2018.

3498 Resolution of the Supreme Court of the Russian Federation dated 9 November 2015 on the case N A40-42997/2014 *Teva Pharmaceutical Industries Limited v FAS of Russia*.

3499 Articles 1239, 1362 of the Civil Code of the Russian Federation.

3500 Press release ‘FAS Set about the Intellect’ (n 339).

3501 FAS Russia Report about the state of competition In Russian federation for 2017, 214-216, <https://fas.gov.ru/publications/17041>.

3502 Press release ‘FAS Set about the Intellect’ (n 339).

3503 Press release ‘Package for Shuvalov’ (17 June 2014), <<https://fas.gov.ru/publications/4863>> accessed 30 January 2019; Press release ‘FAS Set about the Intellect’ (n 339).

immunity refers to potential chilling effects on innovation and decrease in investment attractiveness of Russia, rise in prices for access to the platforms and hindering effective commercialisation of technology.³⁵⁰⁴ The opponents of FAS of Russia argue that the mechanism of judicial protection contained in the Civil Code (including compulsory licensing, abuse of the right, the principle of exhaustion of the right) is effective enough to deal with abusive practices of IPR-holders.³⁵⁰⁵ However, the amendments might be included in a separate bill.³⁵⁰⁶

As of now, there are no specific, IP-related competition law guidelines in Russia.

Sectors Exempted from Competition Law Enforcement

Competition Law Labour Exemption

Many jurisdictions (such as the US and EU) provide for competition law labour exemption, whereas collective agreements between employers and workers aimed at setting the better employment terms are exempted from competition law scrutiny.³⁵⁰⁷ This labour exemption does not cover independent contractors, as they enjoy much higher level of autonomy than traditional employees.

In the age of gig economy, the new class of workers has emerged who provide services in a triangular relationship where an online platform serves as an intermediary linking the workers to potential customers. Though retaining significant degree of autonomy regarding their working schedule, in many other aspects they form dependant relationships with the platform/intermediary. Being considered independent contractors, they formally fall within the scope of competition law, which has been criticised by many scholars proposing to extend the labour exemption to gig economy workers who are not genuinely self-employed.³⁵⁰⁸

Russian competition law does not set forth formal labour exemption for collective agreements between employers and workers. However, it defines specific subjects falling within its scope. According to Part 1 of Article 3 of the Federal law 'On Protection of Competition', competition law applies to relationships related to competition and involving, *inter alia*, individual entrepreneurs and other natural persons. According to Part 5 of Article 4 of the said law, the definition of 'economic undertaking' covers also 'other

3504 Arina Vorozhevich, 'Antitrust Immunity for Intellectual Property in Russia while Building a Digital Economy: Abolish or Retain?' (2018) N19 Journal of the Court of Intellectual Property Rights 55; Valery Narezhny, 'Is It Necessary to Exclude the Anti-monopoly Immunity of Intellectual Property from the Legislation on the Protection of Competition?' (July 2018) N7 Patents and licenses. Intellectual Rights; A. Akifeva, 'Cancellation of "Antitrust Immunities" for Intellectual Property: Pros and Cons' (08 February 2017), <<http://отрасли-права.рф/article/22189>> accessed 03 February 2019.

3505 *ibid.*

3506 Press release 'FAS Set about the Intellect' (n 339).

3507 Albany, C-67/96, EU:C:1999:430; section 6 of the Clayton Act 15 U.S.C. § 17 (2018).

3508 Marina Lao, 'Workers in the "Gig" Economy: The Case for Extending the Antitrust Labor Exemption' (June 12, 2017) 51 UC Davis L. Rev. 1543; Dagmar Schiek and Andrea Gideon, 'Outsmarting the Gig-Economy through Collective Bargaining – EU Competition Law as a Barrier to Smart Cities?' (2018) 32:2-3 International Review of Law, Computers & Technology <<https://doi.org/10.1080/13600869.2018.1457001>> accessed 02 February 2019.

natural persons, not registered as an individual entrepreneur, but carrying out professional activities that generate income... on the basis of state registration and (or) license, as well as by virtue of membership in a self-regulating organization'. The latter provision appeared in the federal law in 2011 and was intended to extend competition laws to advocates, notaries, appraisers and other self-employed individuals.³⁵⁰⁹ It potentially covers gig economy workers (e.g. drivers working for car sharing platform Yandex.taxi who should obtain taxi license to join the platform).³⁵¹⁰ However, at the moment there are no antitrust cases focusing on agreements between individual service providers for online platforms/intermediaries (presumably, because collective bargaining in this field does not exist in Russia yet).

Defence and Other Public Sectors

Russian economy is characterised by the presence of natural and state monopolies, with the latter created in those areas in which competitive markets could still provide efficiency, but the public interests (such as economic and state security, defense, etc.) require the economic activity to be performed by a single enterprise established by the state and under the state control and supervision.³⁵¹¹ State monopolies are introduced by federal laws for each specific sector. State monopolies cover such activities as issue of the fiat money,³⁵¹² military-technical cooperation,³⁵¹³ circulation of precious metals,³⁵¹⁴ addictive and psychotropic substances.³⁵¹⁵

Russian defense industry is assumed to be less competitive and requiring the higher level of the state control. Thus, in the National Plan for the Development of Competition in the Russian Federation for 2018–2020, defense sector is explicitly exempted from some proposed initiatives aimed at increasing competition, such as presence of at least three undertakings in the market, at least one of which is privately owned; or prohibition of direct or indirect acquisition by the state of shares and equity stakes in companies operating in competitive markets.³⁵¹⁶ In addition, in contrast to competitive sectors, FAS of Russia is not authorised to oversee the procurement of goods, works, and services for the state defense purposes, which is within the competence of the special agency – Federal Service on the Defense Order (“Rosoboronzakaz”) – and subject to specific procedures set forth by law.³⁵¹⁷ Therefore, we would expect that digital and technological initiatives in this areas will fall outside the competition scrutiny.

3509 Igor Artemyev (ed), Scientific and Practical Commentary to the Federal Law “On Protection of Competition” (article by article) (Statut 2015) 32.

3510 <<https://oyandextaxi.ru/licenziya-yandeks-taksi-nuzhna-li>> accessed 02 February 2019.

3511 K.A.Pisenko, B.G.Badmaev, K.V.Kazaryan, Antitrust (Competition) Law: Textbook (Consultant 2014) 25.

3512 The Federal Law dated 10 July 2002 N 86-FZ ‘On the Central Bank of the Russian Federation (Bank of Russia)’.

3513 Federal Law dated 19 July 1998 N114-FZ ‘On the Military-Technical Cooperation between the Russian Federation and Foreign States’.

3514 Federal Law dated 26 March 1998 N 41-FZ ‘On Precious Metals and Precious Stones’.

3515 Federal Law dated 8 January 1998 N 3-FZ ‘On Narcotic Drugs and Psychotropic Substances’.

3516 The Decree of the President of the Russian Federation ‘On the Main Directions of the State Policy for the Development of Competition’ (n 205).

3517 Federal Law dated 27 December 1995 N 213-FZ ‘On the State Defense Order’.

Agriculture

Russian competition law currently does not set forth any specific antitrust exemptions for agricultural sector. However, the agricultural sector has always been in focus of national competition policies. In fact, FAS of Russia takes active part in the programme of digitalization of the agriculture with the view to promoting competition in the Russian agricultural sector and reducing its dependence on foreign breeding and genetic materials and related agrotechnological solutions.³⁵¹⁸ Thus, FAS of Russia promotes the infrastructural projects aimed at increasing competitiveness of Russian agriproducts and seed materials, such as creation of the national genetic collections for accelerated breeding and the national precision agriculture platform.³⁵¹⁹

It should be noted that the general exemptions contained in Article 13 of the Federal law 'On Protection of Competition' and the Decree of the Government of the Russian Federation dated 16 July 2009 N 583 'On the Cases of Permissibility of Agreements between Economic Entities' apply to agricultural sector with regard to conditions of exemption of vertical agreements, R&D agreements and agreements on collaborative use of the R&D results, which could cover the use of innovative technologies in agriculture.

13.2.5. Describe the competition law activity of your jurisdiction related to the digital economy since 2001

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Recently the topic of protection of competition in the new digital economy has been high on the agenda of the Russian competition authority. In 2017 FAS of Russia dedicated the entire 'Report on the State of Competition in the Russian Federation' (the annual document that FAS of Russia prepares for review of the Russian Government) to the challenges that digital economy poses to competition in Russia.³⁵²⁰ These challenges include, *inter alia*, the widespread use of multilateral platforms, price-setting algorithms, machine learning, big data, increasing importance of intellectual property rights, etc. These conclusions have been based on the current enforcement practice of FAS of Russia which has investigated several landmark cases in relation to violations of competition law in the digital markets, as outlined below.

Abuse of a dominant position

During last few years FAS of Russia has conducted several investigations of abuse of dominant position by the key players in digital markets. One of the most important

3518 See Point 3 of the Annex to the National Plan for the Development of Competition in the Russian Federation for 2018–2020; Press release 'Creating a System of High-tech Accelerated Selection Services Will Allow to Strengthen the Positions of Russia in the Market of Agricultural Technologies' (18 October 2018) <<https://fas.gov.ru/news/26152>> accessed 03 February 2019.

3519 *ibid.*

3520 'Report on the State of Competition in the Russian Federation in 2017' <<https://fas.gov.ru/documents/658027>> (available only in Russian) accessed 25 February 2019.

cases is the investigation in relation to Google Inc., Google Ireland Limited, Google LLC (hereinafter – ‘**Google**’).³⁵²¹ In 2015 FAS of Russia brought a case against Google following the complaint of Yandex, the leading Russian web browser, and found that Google violated Article 10 (1) of the Federal Law No. 135-FZ ‘On Protection of Competition’ (abuse of dominance). Google breached the competition law in the market for pre-installed app stores for Android OS localized for distribution in the territory of Russia.

FAS of Russia concluded that smartphones operating on Android OS should include Google Play to be commercially successful. Google used its dominant position in the market for pre-installed app stores for Android OS as a leverage in its relations with manufacturers to restrict competition in other markets. Google imposed on manufacturers the following conditions for pre-installation of Google Play on their smartphones: (i) bundling of Google Play and GMS package at the pre-installation stage, (ii) making Google a default search engine, (iii) priority placement for Google applications on the screen of mobile devices, and (iv) prohibiting the pre-installation of the competitors’ applications.

As the result of the investigation, Google Inc. and Google Ireland Limited were prescribed to stop their practices of restriction of competition and to notify users of opportunity to deactivate pre-installed apps, change search engine and location of apps on smartphone screen. In a separate decision, FAS of Russia charged Google Inc. with a fine amounting to 438,067,400.39 roubles (6,686,530 EUR).³⁵²² The companies challenged both the decision and the fine but the court ruled in favour of the Russian competition authority. On 17 April 2017, Google and FAS of Russia entered into the settlement agreement, according to which Google agreed to comply with FAS of Russia requirements to stop restrictive practices, notify users of opportunity to deactivate pre-installed apps, change search engine and location of apps on smartphone screen as well as to pay additional fines 500,000 roubles each (7,632 EUR).

In 2017 FAS of Russia investigated another important case on abuse of dominance by Microsoft Corporation (**‘Microsoft’**) on the basis of a complaint of Kaspersky Laboratory (‘applicant’), the Russian company producing antimalware solutions compatible with, *inter alia*, operational systems (OS) produced by Microsoft. According to the complaint, Microsoft employed a policy of discrimination of antimalware software and engaged in unfair competition practices. FAS of Russia defined the market as the market of RTM (release to manufacturing) versions of operational systems for stationary devices which is of global nature. According to the decision, Microsoft has the dominant position in this market (95,6%).³⁵²³ FAS of Russia found that a certain time prior to the release of a new OS, Microsoft provides external software developers with the RTM versions of the OS that they ensure the compatibility of their software with the new OS. However, when

3521 Decision of FAS of Russia on the case No. 1-14-21/00-11-15 dated 18 September 2015 <<http://solutions.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ad-54066-15>> accessed 25 February 2019.

3522 Resolution on the Imposition of a Fine for the Case of Administrative Violation No. 4-14.31-6/00-11-16), FAS Russia <<https://solutions.fas.gov.ru/ca/pravovoe-upravlenie/ad-55539-16>> accessed 25 February 2019.

3523 Decision on the case No. 1-00-168/00-11-16 dated 15 August 2017 <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ag-56549-17/>> accessed 25 February 2019.

in 2015 Microsoft released the Windows 10 OS, it significantly (to six days) reduced the time for adopting external software to the new OS. FAS of Russia found the designated period to be too short to ensure the compatibility of the applicant's antimalware software with Windows 10 OS. Importantly, the new OS had the Windows Defender, Microsoft antimalware solution, already preinstalled. According to the applicant, this led to its failure to adapt Kaspersky software to the new version of OS and resulted in 42% computers left without Kaspersky Laboratory antimalware software upon upgrade to Windows 10.

These and similar restrictions lead FAS of Russia to conclusion that, taken as a whole, the requirements of Microsoft to the external software developers created discriminatory conditions for the functioning of the applicant's software with the Windows 10 OS. Thus, Microsoft actions were qualified as a breach of Article 10 (1) (8) of the Federal Law No. 135-FZ 'On Protection of Competition' (abuse of dominance through creating discriminatory conditions). FAS of Russia issued a warning obliging Microsoft to change the technological requirements to external software.

As for the unfair practices of Microsoft, FAS of Russia found that Microsoft designed the pop-ups, which warned users about the status of Microsoft Defender on their devices. These pop-ups used 'alarming' colors that could have created the feeling that a computer was threatened and, thus, could have compelled users to rely more on Microsoft own antimalware program. FAS of Russia qualified this practice as unfair competition (Article 14.2 (1) of the Federal Law No. 135-FZ 'On Protection of Competition') and issued a warning for Microsoft to change its approach to targeting users.

Since Microsoft complied with both warnings issued by FAS of Russia during the proceedings, the case against it was closed. Compliance with FAS of Russia requirements created equal conditions for antimalware developers not only in the Russian Federation, but also in other territories where Microsoft is active, thereby ensuring effective competition in the global antimalware market.³⁵²⁴

Digital Cartels

In recent years, FAS of Russia has been actively investigating cases on coordination of economic activity and bid rigging via price-setting algorithms.

One example of such investigations is **LG Electronics RUS** case. In 2017 LG Electronics RUS, the exclusive importer of LG products (including smartphones) to Russia, was found to be in breach of Article 11 (5) of the Federal Law No. 135-FZ 'On Protection of Competition' (unlawful coordination of economic activity) in the retail market of the specific models of LG smartphones sold without the use of brick-and-mortar facilities. The company was involved in illegal coordination of economic activity of LG smartphones resellers, which led to setting and maintaining prices of smartphones. LG Electronics RUS set recommended retail prices on LG smartphones and monitored resellers both

3524 Press release 'FAS Presidium: the Case against Microsoft is one of the best' <<http://en.fas.gov.ru/press-center/news/detail.html?id=53194>> accessed 25 February 2019.

manually and using a special pricing algorithm. Resellers also used pricing algorithms for monitoring their competitors' non-compliance with recommended prices set by LG Electronics RUS. LG Electronics RUS forced resellers to adhere to the recommended prices by the threat of sanctions (up to suspension of the product delivery). Such practices of LG Electronics RUS suppressed the differentiation of prices for LG smartphones. FAS of Russia concluded that the use of pricing algorithms, which was not *per se* illegal, in this particular case served as a circumstance facilitating the violation of competition law. As a result of the investigation, FAS of Russia imposed on LG Electronics RUS a fine amounting to 2,500,000 roubles (38,159 EUR) and prescribed it to stop anticompetitive practices.³⁵²⁵

In 2018 FAS of Russia investigated a case of bid rigging involving the use of price-setting algorithms. VALIRIA LLC (hereinafter – '**VALIRIA**') and Egamed LLC (hereinafter – '**Egamed**') entered into collusion during 14 auctions for the supply of surgery expendables for public healthcare organizations in 2016. In 12 out of 14 auctions VALIRIA and Egamed automated their collusion via the software built into the e-procurement platform Sberbank-AST.³⁵²⁶ The companies set-up auction robots in a way that in some auctions VALIRIA won the auction whilst in other auctions Egamed was the winner. FAS of Russia also proved that auction robots of VALIRIA and Egamed submitted bids from the same IP address and used the same IP address to sign awarded contracts. Based on these evidences, FAS of Russia concluded that VALIRIA and Egamed entered into collusion aimed at fixing the contract price during 14 auctions for supply for the public needs. FAS of Russia charged Egamed with a fine amounting to 1,040,068 roubles (15,875 EUR).³⁵²⁷ Recently FAS of Russia has investigated similar case in relation to companies' use of price-setting algorithms.³⁵²⁸

In 2016 FAS of Russia investigated another important case on coordination of economic activity in the e-commerce area. The case was related to **Apple Rus**, Apple Holding B.V., Apple Sales Ireland, Apple Operations International, Apple Inc. The market affected was defined as the federal retail market of the certain models of Apple smartphones. FAS of Russia suspected that Apple Rus had been coordinating economic activity of its resellers and distributors since 2013 by controlling the prices set by the latter. Apple Rus

3525 Decision of FAS of Russia on the case No. 1-11-18/00-22-17 dated 3 February 2018, <<https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-14552-18>> accessed 25 February 2019.

3526 Sberbank-AST is an electronic procurement platform used for organising auctions on goods, works and services for public and municipal needs.

3527 Decision of FAS of Russia on the case No.4-14.32-1205/00-22-18 dated 19 November 2018, <<https://br.fas.gov.ru/ca/pravovoe-upravlenie/ats-93891-18/?query=%D0%B2%D0%B0%D0%BB%D0%B8%D1%80%D0%B8%D1%8F>> accessed 25 February 2019.

3528 For example, Murmansk Antimonopoly Service of Russia decided similar case in 2016. In this case colluders ("ORKO-Invest" LLC and "TSOO" LLC) used auction robots in 22 of 25 e-procurement auctions on solid domestic and medical waste removal for state needs. Murmansk Antimonopoly Service of Russia proved collusive intent of the companies based on the patterns of their behavior when using auction robots, as well as other evidence (for example, the same IP address for the bid submission). See Murmansk Antimonopoly Service of Russia decision No. 05-03-16/6 dated 06 November 2016 <<https://br.fas.gov.ru/to/murmanskoe-ufas-rossii/05-03-16-6-ebc701b6-df71-4ef4-bb18-4bb972d58ae9/>> accessed 25 February 2019.

monitored the price compliance through e-mail communications with resellers and distributors as well as through restrictive contractual provisions, with the view to stabilizing prices of Apple smartphones in the federal market. Therefore, FAS of Russia charged Apple Rus with a breach of Article 11(5) of the Federal law № 135-FZ 'On Protection on Competition' (coordination of economic activity that affects competition) and imposed an administrative fine of 1,750,000 RUB (26,711 EUR) taking into account mitigating circumstances (voluntary termination of unlawful activity and cooperation with the anti-monopoly authority).³⁵²⁹

It is worth mentioning that FAS of Russia had investigated antitrust violations in the digital markets before it became competition enforcement mainstream. In 2009 on the basis of the complaint of NGO 'The Center of the Free Technologies', FAS of Russia launched the investigation of coordinated actions of **laptops producers** (Acer Inc., ASUSTeK Computer Inc., Dell Inc., Hewlett-Packard Company, Samsung Co. Ltd, Toshiba Corporation) that pre-installed Microsoft Windows OS on their devices. FAS of Russia found that the above mentioned producers sold more than 90% of their laptops with Microsoft Windows OS already preinstalled. The producers did not set a refunding procedure for returning non-activated Microsoft Windows OS, although license agreements between producers and final users mentioned the return opportunity. Moreover, a similar procedure was set in sub-license agreements between the producers and Microsoft Corporation. FAS of Russia made a preliminary conclusion that the producers acted in coordination when they sold preinstalled OS and offered no return procedure to customers. Despite this, FAS of Russia found no breach of competition law because (i) the producers' actions were based on the evident consumer demand; (ii) the market for laptops offered options with other preinstalled OS, as well as with no OS preinstalled; (iii) every producer created an independent return procedure for a preinstalled OS (though less than 0,1% of consumers had ever used the procedure).³⁵³⁰

Data mergers

Since 2017 FAS of Russia has resolved several significant merger cases related to digital economy. One of the landmark cases is the merger between '**Bayer AG**' (Germany) and '**Monsanto Company**' (USA). FAS of Russia investigated this merger in 2017-2018 and found that it affected the markets for the products used by agricultural producers, including agricultural crops (seeds), certain crop protection products, in particular non-selective herbicides, as well as digital solutions for agriculture. Having realized that the merger would have a significant impact on industry innovation and technological development dynamics in the agricultural sector, FAS of Russia applied a new methodology to identify potential anticompetitive effects of the merger both in the Russian and global markets. FAS of Russia took a dynamic approach by defining a market as the

3529 Decision of FAS of Russia on the case No.1-11-59/00-22-16 dated 27 March 2017 <<https://solutions.fas.gov.ru/ca/upravlenie-po-borbe-s-kartelyami/ats-20961-17>> accessed 25 February 2019.

3530 Decision of FAS of Russia on the case No.1-11/100-09 dated 16 November 2009 <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/1-11-100-09/>> accessed 25 February 2019.

integrated agro-technological market. Thus, in this case FAS of Russia switched its focus from isolated product markets to global value chains and from price-related effects to innovations.

According to FAS of Russia preliminary decision,³⁵³¹ the merger might restrict competition in agriculture markets. In particular, following the merger, the new barriers to market entry would emerge and the existing ones would strengthen. As the result of the merger in the already oligopolistic agro-technological market, the incentives for anticompetitive collision would be increased. Moreover, FAS of Russia concluded that combining the unique innovative capabilities of Bayer and Monsanto would sharply increase their market power via exercise of intellectual property rights by the merged undertaking.

To prevent restriction of competition, FAS of Russia approved the acquisition of Monsanto by Bayer with conditions.³⁵³² Thus, Bayer is obliged not to reduce the annual volume of seeds supply to the Russian Federation and to prevent economically or technologically unjustified tying of seeds and plant protection products. Bayer is also prescribed to transfer its technologies of molecular breeding and/or germplasm for the several crops as well as historical agricultural data to Russian researchers and companies. Besides, Bayer is obliged to provide non-discriminatory access to its Digital Farming Database and Digital Farming Platforms for Russian developers of agricultural software. In opinion of FAS of Russia, access to such data plays a key role in enabling Russian companies to develop and introduce IT-products in the field of precise farming.³⁵³³ Moreover, for the first time in its enforcement practice FAS of Russia appointed an independent private trustee (Higher School of Economics Center for Transfer of Technologies) to monitor Bayer's compliance with the above requirements and to ensure implementation of the technological transfer.

In 2017 the FAS of Russia reviewed the joint venture agreement between Yandex NV LLC (hereinafter – '**Yandex**'), Uber International C.V. (hereinafter – '**Uber**') and MLU B.V. LLC (hereinafter – '**MLU**') in the market of information intermediation services for taxi drivers and passengers in the Russian Federation. According to this agreement, Yandex and Uber transferred their Russian taxi aggregator business (including trademarks) to the new company MLU, which would deliver the taxi aggregator services on the Yandex IT-platform.³⁵³⁴

FAS of Russia defined the market as the taxi aggregator market, meaning a market of taxi services delivered via multi-sided digital platform integrating passengers and driv-

3531 Decision of FAS of Russia dated 08 November 2017 <<https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/-c084b115-a929-42e7-a5a9-a8362a96e6c4>> accessed 25 February 2019.

3532 Decision of FAS of Russia dated 20 April 2018 <<https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/ia-28180-18>> accessed 25 February 2019.

3533 Decision of the FAS Russia on the results of consideration of the application dated April 20, 2018 <<https://solutions.fas.gov.ru/ca/upravlenie-kontrolya-agropromyshlennogo-kompleksa/ia-28180-18>> accessed 25 February 2019.

3534 Forbes, 'The merger of Yandex.Taxi and Uber – the deal of the year according to Forbes' (22 December 2017) <<https://www.forbes.ru/biznes/354799-sliyanie-yandekstaksi-i-uber-sdelka-goda-po-versii-forbes>> accessed 24 February 2019.

ers.³⁵³⁵ Despite finding the market of taxi aggregators to be highly competitive, FAS of Russia was concerned about the ability of Yandex and Uber to dump prices at the taxi aggregator market, as pointed out by survey participants.³⁵³⁶ Moreover, the taxi aggregator market tends to be concentrated.³⁵³⁷

In order to resolve the mentioned concerns, FAS of Russia approved the joint venture agreement with conditions. The conditions aimed at providing customers with the full information allowing them to choose and assess the services delivered. Moreover, MLU should not prohibit drivers and passengers from using mobile applications of other taxi aggregators.³⁵³⁸

In 2017 FAS of Russia considered the merger of the technological company **Mail.Ru** which owns a popular mail service, large advertisement platform MyTarget and social networks Vkontakte and Odnoklassniki, and telecom operator **Megafon** which develops its own over-the-top (OTT) services. FAS of Russia analyzed the market of OTT-services and the telecom market. FAS of Russia expressed two major concerns related to the merger: (i) creation of advantages by Megafon for its own OTT-services via their prioritization for users; (ii) ability to gain advantages from combining users data obtained by the merging parties. The parties resolved the first concern by claiming that provision of OTT services was carried out according to the principle of 'net neutrality'. The breach of this principle could trigger an antitrust investigation. As for the second concern, FAS of Russia found that the data sets of the merging parties were significantly overlapping and many Russian technological companies had access to the same or similar users data. FAS of Russia concluded that the merger would not harm competition on the related markets and cleared it without remedies.³⁵³⁹

Sector enquiries

FAS of Russia conducts sector enquiries in accordance with the Plan for such enquiries set for two-years period.³⁵⁴⁰ Up to the present, FAS of Russia has not conducted the specific sector enquiries for the digital markets. At the same time, in the course of investigation of digital-related cases or consideration of mergers with significant digital dimension, FAS of Russia performed the overall analysis of markets affected. In such analysis FAS of Russia successfully applied new methodological approaches which it had never used before in relation to more traditional markets. For example, in the course of Bayer/

3535 FAS of Russia, 'Analytical Report on Competition in the Taxi Aggregator Market' (2017) <<https://fas.gov.ru/documents/678673>> accessed 25 February 2019. The aim of this FAS of Russia report was to conduct market analysis and understand whether Yandex, Uber and MLU joint venture agreement raised competition concerns.

3536 ibid 25.

3537 FAS of Russia Press Release dated 24 November 2017, <<https://fas.gov.ru/news/23389>> accessed 25 February 2019.

3538 Order of FAS of Russia dated 24 November 2017, <<https://fas.gov.ru/documents/594339>> accessed 25 February 2019.

3539 Decision of FAS of Russia dated 31 March 2017, <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ag-6623-17/>> accessed 25 February 2019.

3540 Order of FAS of Russia dated 5 December 2016 No. 1718/16 'On Plan of Activities of FAS of Russia on Conducting Analysis of the State of Competition in the Product Markets' <http://rulaws.ru/acts/Prikaz-FAS-Rossii-ot-05.12.2016-N-1718_16/> accessed 25 February 2019.

Monsanto merger review, FAS of Russia assessed the relevant market in the context of the growing globalization and integration of agricultural production into global value chains. FAS of Russia considered not only the current position of the merging companies in the relevant markets, but also the likely changes in the structure of these markets and, accordingly, the state of competition in the short and mid-term perspective. Analysis of the markets in Google and Microsoft cases took into account the attitude of end users to the product, as in the digital markets the business strategies of both sellers and buyers are largely determined by the preferences and behavioural patterns of end users.

Since FAS of Russia takes an active stance in facing the challenges of digital economy, after gaining some experience in competition enforcement in the digital markets, the Russian competition authority raised the relevant discussion in the supranational format. Heads of CIS competition authorities discussed competition law issues in digital economy at the meeting of the Interstate Council on Antimonopoly Policy (ICAP) of CIS countries in September 2018.³⁵⁴¹ In the course of this meeting FAS of Russia presented the 'Report on Development of Competition Policy in the Digital Economy in CIS Countries' (hereinafter – the '**Report**').³⁵⁴² The Report describes the main threats to competition, and the ways for developing essential tools for effective protection of competition in the CIS markets. The Report mentions that only Russia has made an attempt to adjust competition legislation to face the challenges of digital economy. Among the CIS countries, only Belarus, Kazakhstan and Russia have some experience in investigation of cases and mergers in digital markets.³⁵⁴³ The Report raises the questions of adjusting competition law and policy to the new realities by the CIS competition authorities and suggests some solutions in order to facilitate this process. For example, the Report states that the CIS member states should take urgent measures to improve the antimonopoly legislation, including introduction of additional tools for market analysis and, in particular, updating the definition of a dominant position in order to take into account the features of digital economy.

Regulation of rates by FAS of Russia regarding digital markets

Since 2010 FAS of Russia investigated several important cases related to providing roaming services in telecommunication markets.

In 2018 FAS of Russia investigated a case in relation to the Russian largest telecom companies **MTS, Vimpelcom, Megafon and Tele 2** (hereinafter – the '**big four telecom operators**') on maintaining monopolistically high prices for telecommunication services of national roaming in the territory of the Russian Federation. From the technical point of view, roaming refers to a situation when a telecom operator (home operator) provides

3541 Press-release of FAS of Russia 'Igor Artemiev: if We Unite Our Efforts and Interests, Global Giants Shall Listen', <<http://en.fas.gov.ru/press-center/news/detail.html?id=53401>> accessed 25 February 2019.

3542 'Report on Development of Competition Policy on the Digital Economy' <e-cis.info/foto/pages/26602.docx> accessed 25 February 2019.

3543 The Report includes data on Armenia, Belarus, Kazakhstan, Kyrgyz Republic, Russia and Tajikistan.

a subscriber with opportunity to receive telecom services from another operator (partnering operator) which a subscriber does not have a contract with. Roaming services are provided when a subscriber is located in the territory where the home operator does not have infrastructure, but the partnering operator does. Home and partnering operators provide roaming services based on an inter-operator roaming agreement which sets an inter-operator roaming rate. The final price of roaming service consists of an inter-operator roaming rate (direct costs) and operational costs of implementation of the inter-operator roaming agreement (indirect costs).

The companies under investigation do not have telecom infrastructure in the territory of Sevastopol and Crimea but have inter-operator roaming agreements with several local telecom operators. FAS of Russia found that the roaming tariffs of the big four telecom operators were unreasonably higher than the inter-operator roaming rates and all the indirect costs borne by the operators with relation to roaming services provision. In the course of the investigation three of the companies (MTS, Vimpelcom and Megafon) made changes in tariffs for roaming services. FAS of Russia found new roaming tariffs economically and technologically reasonable and closed the cases against them.³⁵⁴⁴ Tele2 refused to decrease the roaming tariffs voluntarily. FAS of Russia prescribed the company to lower the roaming tariffs.³⁵⁴⁵

In 2010 FAS of Russia jointly investigated a case in relation to Russian (**MTS, Vimpelcom, Megafon**) and Kazakh (**GSM Kazakhstan, Mobile Telecom-Service, Car-Tel**) telecom companies for setting and maintaining monopolistically high prices of roaming services in the territory of the Russian Federation and international roaming services in the territory of the CIS countries (the Article 10 (1) (1) of the Federal Law dated 26 July 2006 No. 135-FZ 'On Protection of Competition') and imposing unfair terms of contracts on subscribers (Article 10 (3) (1)).

In parallel, the competition authority of Kazakhstan investigated the same case. The competition authorities of Russia and Kazakhstan initiated the case on the basis of the inquiry into the telecommunication market in the CIS countries conducted by the Headquarters for Joint Investigations of the Violations of Antimonopoly Legislation in the CIS Countries.³⁵⁴⁶ The results of the inquiry showed that roaming tariffs in CIS countries were 4.5 times higher than the prices for similar services in the European Union. FAS of Russia concluded that the Russian telecom operators set and maintained economically and technically unreasonable roaming tariffs. The companies also made changes to the terms of payment for roaming services without clear pre-notification of subscribers. FAS of Russia prescribed to decrease the roaming tariffs until the economically reasonable

3544 Decision of FAS of Russia on the case No. 1-10-101/00-11-17 dated 23 March 2018 <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/1-10-101-00-11-17/?query=>> accessed 25 February 2019.

3545 Decision of FAS of Russia on the case No. 1-10-104/00-11-17 <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/ag-29155-18/>> accessed 25 February 2019.

3546 'The Report on the State of Competition on Telecommunication Market in CIS countries', <<http://old2.fas.gov.ru/international-partnership/msap/dokladyi/>> accessed 25 February 2019.

level and to introduce a notification system on changes in the payment policy for roaming services.³⁵⁴⁷

The companies fully complied with the decision of FAS of Russia. As the result of this investigation, the roaming tariffs of the Russian companies lowered significantly (for voice call – up to two times, for SMS – up to three times, for Internet – up to four times).³⁵⁴⁸

In addition to enforcement activity, in 2014 FAS of Russia prepared the Fair Roaming Principles aimed at the creation of non-discriminatory conditions in the markets of telecommunications services and at bringing tariffs for international communications and roaming services to the reasonable level.³⁵⁴⁹ The Principles include: (i) effective competition between partnering operators, including, in registration of guest subscribers in each country; (ii) reciprocity of measures undertaken to develop competition and to reach the balance of interests of a network operator and its customers; (iii) non-discriminatory pricing for subscribers of partnering operators in home country and in the territory of roaming; (iv) non-discriminating conditions for partnering operators offering call termination services from the networks of foreign operators and operators in the country of registration. The Principles were prepared in collaboration with industry regulators and market participants and led to significant improvement of competition environment in the international telecommunications markets.

13.2.6. Recent and Ongoing Reforms of the Competition Law as the Result of Digitization

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Over the last ten years Russian competition law has been amended several times, though these amendments have had very limited digital aspects, aiming mostly to provide electronic communication between stakeholders (authorities, business and consumers).³⁵⁵⁰ Some of these amendments established, for example:

- (i) obligatory online disclosure of information on the decisions, orders adopted by the competition authority via official website, as well as electronic submission of notices and petitions by complainants;
- (ii) introduction of compulsory electronic procurement (hereinafter – **“e-procurement”**) in certain cases.³⁵⁵¹

3547 Decision of FAS of Russia on the case No. 1-10/21-10 dated 22 October 2010.

3548 Press-release ‘Big three’ Decreased Roaming Tariffs in the RF and CIS’, <<https://www.rbc.ru/economics/01/12/2010/5703e0ea9a79473c0df17927>> accessed 25 February 2019.

3549 Press Release of FAS of Russia ‘Fair Roaming Getting Closer’ <<http://en.fas.gov.ru/press-center/news/detail.html?id=44057>> accessed 25 February 2019.

3550 To the date, the Federal Law ‘On Protection of Competition’ has been revised 43 times (with the last revision on the 27th of December 2018).

3551 E-procurement is compulsory for the following cases: bankruptcy, state and municipal procurement, procurement by state-owned companies.

Russian competition law is currently undergoing significant changes associated primarily with digitization and datafication. This is reflected in the legislative proposals aimed at adjusting traditional competition law toolkit to the digital economy, as well as to increasing efficiency of competition law enforcement in the fast changing digital markets. Finally, some reforms aim at improving competition in specific markets that are undergoing digital transformation (for example, the telecom markets).

The Presidential Decree ‘On the State Policy for the Development of Competition’ sets forth ‘effective prevention of cross-border antitrust violations as well as strengthening the competitiveness of Russian companies in global markets’ as the key goals of competition law reforms in the digital age.³⁵⁵² This imperative permeates each and every reform proposal outlined below.

Reforms of General Competition Law Principles Regarding Digital Platforms

FAS of Russia Annual Report on the State of Competition in the Russian Federation in 2017,³⁵⁵³ as well as FAS of Russia recent case studies,³⁵⁵⁴ show that digital technologies have significantly changed competition landscape, with the emergence of new product markets (for example, markets for internet search, operating systems, online advertisement), novel business models (‘one-stop shop’ ecosystem business model),³⁵⁵⁵ as well as further sophistication of anticompetitive practices powered by technology (e.g., pricing algorithms to monitor resale prices, auction robots to automate collusion in e-procurement).

The main normative act setting the digital strategy agenda for Russia, the State Programme,³⁵⁵⁶ prescribed FAS of Russia and the Ministry of Economic Development in collaboration with Russian business and expert communities³⁵⁵⁷ to develop the ‘Fifth antimonopoly package’ of amendments to the laws (hereinafter – the **‘Fifth antimonopoly package’**).³⁵⁵⁸ According to the State Programme, ‘the adjustment of competition law to digital economy’ is declared as the principal aim of the Fifth antimonopoly

3552 The Decree of the President of the Russian Federation ‘On the Main Directions of the State Policy for the Development of Competition’ (n 205).

3553 Report on the State of Competition in the Russian Federation in 2017 (n 356).

3554 See, e.g., FAS of Russia ‘Analytical Report on Competition in the Taxi Aggregator Market’ <<https://fas.gov.ru/documents/678673>> accessed 06 March 2019; FAS of Russia ‘Analytical Report on Competition in the Market of Operating Systems for Desktops and Laptops’ <<https://fas.gov.ru/documents/678666>> accessed 06 March 2019.

3555 Report on the State of Competition in the Russian Federation in 2017 (n 356) 309.

3556 State Programme on ‘Digital Economy of the Russian Federation’ (n 192). See Section 2.1. ‘Is there a digital strategy agenda in your jurisdiction?’.

3557 Including HSE—Skolkovo Institute for Law and Development, Yandex LLC, Internet Initiatives Development Fund, and Expert Council under the Government of the Russian Federation.

3558 Major revisions of Russian Law on the Protection of Competition are called an ‘antimonopoly package’, as these revisions amend not only the Law on Protection of Competition, but also provisions of the whole bunch of related laws. Up to date, there were three major revisions of competition law (in 2009, 2012 and 2015), together with the enactment of the Law on Protection of Competition itself (‘First Antimonopoly Package’). Official text of Fifth antimonopoly package is available at <<https://regulation.gov.ru/projects#npa=79428>> accessed 06 March 2019.

package.³⁵⁵⁹ The Fifth antimonopoly package is based on the above studies of FAS of Russia demonstrating that the market power of new digital players stems from the use of big data and network effects. Therefore, the Fifth antimonopoly package proposes novel glossary introducing legal definitions of a digital platform,³⁵⁶⁰ network effects,³⁵⁶¹ and pricing algorithms.³⁵⁶² In addition, it sets the novel criteria for market dominance of digital platforms and for merger assessment, as explained below.

Defining the market dominance. In digital economy, market shares might not indicate the market power. The more users and data the platform has amassed, the more powerful it becomes. Thus, network effects and big data might be indicative of the presence of market power.³⁵⁶³ According to the Fifth antimonopoly package, the competition authority should take into account network effects while assessing market dominance of a platform. In particular, the competition authority should assess whether network effects enable the platform to have decisive influence on the general conditions of circulation of the product in the market and/or restrict entry of potential competitors to the market. In addition, the Fifth antimonopoly package lowers criteria of dominance for a digital platform. In order to be considered dominant, the platform should have an annual worldwide turnover over 400,000,000 roubles (5,381,407.24 EUR) and the market share in the relevant market in excess of 35%.

Mergers and acquisitions notification. Competition authorities have been traditionally using the tests such as worldwide group turnover and value of assets of merging entities to detect mergers with the high anticompetitive potential. However, emerging innovative tech firms might have little turnover or assets at the time of a merger, but exercise significant competitive pressure on incumbents due to their disruptive potential. To this end, the Fifth antimonopoly package introduces the new threshold test based on the transaction price (value), along with the classic aggregate worldwide turnover and the aggregate worldwide asset value tests. The aim of the transaction price test is to trigger merger control of transactions with significant anticompetitive potential (as reflected in the transaction value), which do not pass the turnover test at the time of the transaction.³⁵⁶⁴ Under the Fifth antimonopoly package merger requires notification if the transaction price exceeds 7,000,000,000 roubles (94,174,626.66 EUR).

3559 State Programme on 'Digital Economy of the Russian Federation' (n 192).

3560 According to the Fifth antimonopoly package, digital platform is 'an infrastructure hosted on the Internet used to organize and support the interaction of sellers and buyers.'

3561 The Fifth antimonopoly package defines network effect as a 'dependence of the consumer value of the product on the number of consumers of the same group (direct network effect) or change in the value of the product for one group of consumers while reducing or increasing the number of consumers in another group (indirect network effect)'.

3562 Under the initial draft of the Fifth antimonopoly package pricing algorithm is a software to monitor, calculate or control prices.

3563 Report on the State of Competition in the Russian Federation in 2017 (n 356) 207-208.

3564 In 2017, the transaction volume threshold was incorporated into German and Austrian competition law. See 'Kartell- und Wettbewerbsrechts-Änderungsgesetz 2017' <https://www.parlament.gv.at/PAKT/VHG/XXV/II/I_01522/index.shtml> accessed 06 March 2019 and 'Neuntes Gesetz zur Änderung des Gesetzes gegen Wettbewerbsbeschränkungen' <<http://dipbt.bundestag.de/extrakt/ba/WP18/772/77250.html>> accessed 06 March 2019.

Pricing algorithms. The Fifth antimonopoly package covers the issue of pricing algorithms: according to the proposal, pricing algorithm is a software to monitor, calculate or control prices. FAS of Russia study has revealed an increased number of companies using pricing algorithms to automate anticompetitive vertical restraints, concerted actions, and cartels.³⁵⁶⁵ Therefore, the Fifth antimonopoly package sets forth that the use of pricing algorithms, though not *per se* illegal, aggravates liability when used to restrict competition.³⁵⁶⁶

Access to big data. The first draft of the Fifth antimonopoly package also covered the novel issue of digital economy, which has been widely discussed in the expert community, but never formalised in legal acts – access to big data. Big data is often called an ‘oil of the digital age’,³⁵⁶⁷ as companies, which have managed to collect massive amount of data, gain significant competitive advantage over their rivals and hold a grip over the numerous digital markets. Thus, big data might create barriers to market entry, whenever the access to data is essential to compete in the market.³⁵⁶⁸

Under the first draft of the Fifth antimonopoly package, a company might abuse its dominant position by creating discriminatory conditions of access to big data. FAS of Russia has powers to oblige the owner of big data to provide fair and non-discriminatory access to such data, including user data, to its competitors.

Provisions on access to big data faced strong criticism of business and expert communities as being vague and violating the data protection regulations.³⁵⁶⁹ Thus, FAS of Russia took out these provisions from the final draft of the Fifth antimonopoly package submitted to the Government of the Russian Federation.

Antitrust immunity for IPR. The first draft of the Fifth antimonopoly package covered another highly debated issue in Russia, namely, antitrust immunity for IPR. To prevent IPR-related anticompetitive practices, the first draft proposed to lift antitrust immunity for IPR. However, business community strongly opposed to this initiative (see Section ‘Interaction between competition law and IP rights’ for a more detailed discussion). These provisions have been taken out from the final draft submitted to the Government of the Russian Federation.

3565 Report on the State of Competition in the Russian Federation in 2017 (n 356) 13-14.

3566 Final draft of the Fifth antimonopoly package submitted to the Government of Russian Federation does not contain provisions on pricing algorithms. Nevertheless, provisions on pricing algorithms as aggravating circumstances in case of competition law violations are now part of another legislative proposal currently undergoing public discussion <<https://regulation.gov.ru/projects#npa=85113>> accessed 06 March 2019.

3567 Report on the State of Competition in the Russian Federation in 2017 (n 356) 206. See also ‘The World’s Most Valuable Resource Is No Longer Oil, But Data’ *The Economist* (London, 6 May 2017) <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data> accessed 01 March 2019.

3568 A.Tsarikovsky, A.Ivanov et al., *Antitrust Regulation in the Digital Age: How to Protect Competition in the Context of Globalization and the Fourth Industrial Revolution* (Publishing House HSE 2018) 44 (Цариковский А.Ю., Иванов А.Ю., Войниканис Е.А. и др. ВШЭ. 2018. Антимонопольное регулирование в цифровую эпоху. Как защищать конкуренцию в условиях глобализации и четвертой промышленной революции) <<https://id.hse.ru/novelty/218207502.html>> accessed 06 March 2019.

3569 See, e.g., ‘Russian Corporate Lawyers Association Report on the Fifth Antimonopoly Package’ <<https://rcca.com.ru/files/docs/2018/15022018/okur1.doc>> accessed 06 March 2019.

To summarize, the draft of Fifth antimonopoly package submitted to the Government of the Russian Federation in February 2019 misses some of its highly innovative proposals, but still provides significant improvements of competition law approach to the digital challenges, most notably, those posed by abuse of dominance and assessment of merger.

Currently the Fifth antimonopoly package is undergoing further review in the Government of the Russian Federation and might be subject to subsequent amendments. FAS of Russia expects the Fifth antimonopoly package to enter into effect in January 2020.³⁵⁷⁰

Amendments to Competition Law Enforcement in the Digital Age

The challenges posed by technological advances prompted certain improvements in the enforcement practices of FAS of Russia. These improvements are aimed at finding effective tools to make companies comply with FAS prescriptions in the fast changing technological environment.

With the increasing role of data and IPR in the digital economy, an institute of 'trustee', that is a company monitoring compliance with competition authority prescriptions, is important as it helps control transfer of digital technologies.

Trustee has long been unknown in Russian competition law. FAS of Russia introduced this institute in the case on Bayer AG and Monsanto merger in 2018. In this case FAS of Russia designated a trustee – Higher School of Economics Center on Transfer of Technologies – to monitor the transfer of agriculture biotechnologies from merging undertakings to Russian companies. Currently it is the only case of recourse to a trustee in Russian competition law enforcement practice. However, the Fifth antimonopoly package formally sets forth the institute of a trustee which is required to be independent from the parties.

Website blocking is another novelty in competition law enforcement in the digital age. In Russia, website blocking injunctions constitute a popular tool of enforcement. For example, the court can issue an injunction to block access to websites of companies for non-compliance with the data protection laws.³⁵⁷¹

According to the FAS of Russia proposal to amend the administrative law, in case a company does not comply with the competition authority's decisions on abuse of market power, collusion or merger commitments, the competition authority might ask a court to issue a website blocking injunction.³⁵⁷² As the result, the internet provider should

3570 Press Release 'FAS in the Media: the Fifth Antimonopoly Package Can Become Effective in Russia from 2020 – Head of FAS' (12 November 2018) <<https://fas.gov.ru/publications/16911>> accessed 06 March 2019.

3571 In August 2016 the district court in Moscow issued an injunction to block an access to LinkedIn.com and LinkedIn.ru, as LinkedIn Corporation did not comply with Russian data protection law by refusing to host the data of Russian users in the servers located in the Russian Federation. See the decision of Taganskiy District Court No 2-3491/2016 dated 4 August 2016. <<https://www.mos-gorsud.ru/rs/taganskij/services/cases/civil/details/2ffe6d6d-69cd-423a-8ed7-cf3b3bb2d536?caseNumber=2-3491/2016%09>> accessed 06 March 2019.

3572 The Bill 'On the Amendments to the Code of the Russian Federation of Administrative Offenses' <<https://regulation.gov.ru/projects#npa=85113>> accessed 06 March 2019.

block an access to the website of the company until the latter complies with FAS of Russia order. This legislative proposal is currently undergoing public consultation.

Competition Law Reform for the Pre-Installed Applications Market

To provide competition in the market of software applications, the Government of the Russian Federation prescribed FAS of Russia to develop a law on the pre-installation of software applications.³⁵⁷³ In January 2019 FAS of Russia presented the 'Concept of Pre-Installation of Software Applications' (hereinafter – the '**Concept**') laying the ground for further legislative proposals on the development of competition in the software application market in Russia.³⁵⁷⁴

The reasoning behind the Concept is that pre-installation of software applications on a device is the most effective way to boost their usage. This, in turn, can increase the market power of a software company via network effects. As FAS of Russia decision on abuse of a dominant position by Google has demonstrated, pre-installation of Google Play Market and other Google applications provided a competitive advantage for Google in the market of pre-installed app stores for Android OS.³⁵⁷⁵ Russian software developers lacking the opportunity to pre-install applications could not compete with transnational corporations having strong brands and global agreements on pre-installation with device manufacturers.

The aim of the Concept is two-folded: to protect Russian software application developers, on the one hand, as well as to prevent cross-border antitrust violations by transnational corporations, on the other hand. To this end, the Concept sets two requirements for device manufacturers: (i) to pre-install Russian software applications on their devices, and (ii) to provide users with opportunity to completely delete pre-installed applications except for service applications enabling normal functioning of a device.

The Concept listed four types of Russian software which device manufacturers should pre-install: (i) browser, (ii) antivirus software, (iii) geolocation software (maps, navigators); (iv) messenger. The manufacturer of devices is free to choose a Russian software developer, as well as the method of such pre-installation.

The Concept is currently under review of the Ministry of Digital Development.

Competition Law Reform for the Telecom Market

The strategic documents on transformation of competition law in the digital age require FAS of Russia to propose law amendments removing roaming charges, as well as providing non-discriminatory access to the network telecommunication facilities for telecom operators.³⁵⁷⁶

3573 'Roadmap for the Development of Competition in 2018 – 2020 years' (n 31) part VII 'Information Technologies'.

3574 FAS of Russia Press Release 'FAS Presented the Concept on the Pre-Installation of Software Applications' (25 January 2019) <<https://fas.gov.ru/news/26844>> accessed 06 March 2019.

3575 Decision of FAS of Russia on the Google case (n 366).

3576 See The Decree of the President of the Russian Federation 'On the Main Directions of the State Policy for the Develop-

The work of FAS of Russia aimed at roaming removal started in 2017 by issuing orders to four Russian mobile operators. These orders prescribed them to stop abuse of a dominant position by maintaining monopoly high prices (tariffs) for the roaming communication services.³⁵⁷⁷ In particular, FAS of Russia found that four Russian mobile operators set unreasonably high price of incoming and outgoing calls for subscribers traveling around Russia, as well as introduced an unjustified daily fee when subscribers were outside the 'home' region.³⁵⁷⁸

In December 2018 the President signed amendments to the law which removed roaming within the Russian territory.³⁵⁷⁹ The amendments require mobile operators to set the same price regardless of whether a subscriber is in the 'home' region or is traveling around Russia. The amendments will enter into force in June 2019.

Non-discriminatory access to the telecommunication network facilities is another pending reform of the competition law in the telecom market. This reform is aimed at providing available access to communication services to remote and less populated areas of the Russian Federation. As building competing networks facilities to provide services to these areas is economically unreasonable, the Government of the Russian Federation appointed a telecom company Rostelecom to be a sole provider of universal service to settlements with small population (see Section '*Is universal service for Internet access available?*').³⁵⁸⁰

To develop competition in the telecom market, it is essential that all competitors have equal access to the telecom infrastructure, such as cable ducts and poles. Notably, Rostelecom has already abused its dominant position unreasonably increasing the tariff for the access to cable ducts for other telecom companies.³⁵⁸¹

Roadmap on the Development of Competition in telecom market requires FAS of Russia to develop laws providing non-discriminatory access to the telecommunication infrastructure, as well as streamlining the procedure of obtaining sanitary and epidemiological clearances and telecom facilities construction, speeding up the procedure of obtaining permit for radio frequency channels' use. FAS of Russia's work on these legislative proposals is in progress.

ment of Competition' (n 205); 'Roadmap for the Development of Competition in 2018 – 2020 years' (n 31) part VI 'Telecommunications'.

3577 FAS of Russia decision No 1-10-101/00-11-17 dated 23 March 2018. <<https://br.fas.gov.ru/ca/upravlenie-regulirovaniya-svyazi-i-informatsionnyh-tehnologiy/1-10-101-00-11-17/?query=%D0%B2%D1%8B%D0%BC%D0%BF%D0%B5%D0%BB%D0%BA%D0%BE%D0%BC>> accessed 06 March 2019.

3578 FAS of Russia Press Release dated 8 August 2018 <<https://fas.gov.ru/news/25580>> accessed 06 March 2019.

3579 Federal Law of the Russian Federation dated 27 December 2018 No 527-FZ 'On the Amendments to the Law on Communication'. <<http://publication.pravo.gov.ru/Document/View/0001201812280005?index=0&rangeSize=1>> accessed 06 March 2019.

3580 Article 58 of the Federal Law of the Russian Federation No 126-FZ dated 07 July 2003 'On Communication'.

3581 In 2018 FAS of Russia has charged Rostelecom with a fine for the abuse of dominant position in the market of network telecommunication facilities. FAS of Russia decree No 4-14.31-1251/00-11-17 dated 20 February 2018. <<https://fas.gov.ru/documents/614825>> accessed 06 March 2019.

As this Report demonstrates, digitalization of the Russian economy affects competition law and regulations in many ways. Russia has made significant steps towards adjusting its institutional infrastructure and normative basis to the new realities. First of all, this has been done through numerous state programmes, plans, and legislative proposals, which means that digital challenges are treated seriously on the highest public level. Business community is catching up, though at a slower pace, with the national tech giants (like Yandex and Mail.group) and large digital investors (like the state-backed Sberbank) having emerged during the past decade.

Many improvements are to be done yet. The main challenge still lays in the fact that the technological development is so fast that dealing with it in a reactive way often proves counter-productive. Importantly, the Russian competition authority stays on top of these new developments and successfully applies the existing tools along with devising the new approaches to complex phenomena of the digital economy, as has been demonstrated by a number of case studies and successful innovative practices.

Chapter 14: Country Report – India

Ujjwal Kumar, Swasti Gupta and Poulomi Ghosh

14.1. What is the Business/Technological Environment for the digital economy in your jurisdiction?

14.1.1. What is the Internet access penetration level in your jurisdiction as part of the total population?

As of April 2018, there were 493.6 million³⁵⁸² internet subscribers in India increasing from 251.59 million in 2014. According to a March 2019 report the number of internet users as of December 2018 is pegged at 566 million and is expected to rise to 627 million by the end of 2019.³⁵⁸³ The number of mobile phone users in India have recently reached the 904.25 million mark.³⁵⁸⁴

Up till 2018, Indian citizens have downloaded as many as 12.3 billion applications.³⁵⁸⁵ Additionally, there are 294 million Indians engaged in social media with an average Indian social media user spending as many as 17 hours a week on a social media platform, thus surpassing the number in US and China.³⁵⁸⁶ Further, since 2013 there has been a 95% decline in data costs in the country and the fixed-line download speed has quadrupled between 2014 and 2017.³⁵⁸⁷

14.1.2. Composition of Internet users (age, gender, rural v. cities)

Out of the 493.6 million internet subscribers, 348.13 million are from the urban and 145.83 million from the rural areas.³⁵⁸⁸ As per a 2017 UNICEF report, internet usage in India continues to be a 'male preserve' with less than one-third of Indian internet users

3582 <http://dot.gov.in/sites/default/files/statistical%20Bulletin-2018.pdf?download=1>

3583 <https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-to-reach-627-million-in-2019-report/articleshow/68288868.cms>

3584 <http://dot.gov.in/sites/default/files/statistical%20Bulletin-2018.pdf?download=1> Ibid.

3585 <https://www.mckinsey.com/~media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/digital%20india%20technology%20to%20transform%20a%20connected%20nation/digital-india-technology-to-transform-a-connected-nation-full-report.ashx>

3586 Ibid.

3587 Ibid.

3588 <http://dot.gov.in/sites/default/files/statistical%20Bulletin-2018.pdf?download=1>

being female.³⁵⁸⁹ Over all, female netizens stand at a low of 30-35% of the population.³⁵⁹⁰ Further, only 59% females in India own a mobile phone as opposed to 80% males with only 16% females using mobile internet.³⁵⁹¹

Table 1: Internet Subscribers by Service Areas

Service Areas ¹¹	Total Internet Subscribers (in millions)		
(as on 31.12.2018)	Rural	Urban	Total
Andhra Pradesh	12.83	24.78	37.61
Assam	5.04	4.77	9.81
Bihar	13.51	14.9	28.4
Delhi	0.72	30.42	31.14
Gujarat	8.26	23.16	31.43
Haryana	3.8	5.25	9.05
Himachal Pradesh	2.04	4.9	6.94
Jammu and Kashmir	1.92	3.89	5.81
Karnataka	6.69	25.45	32.14
Kerala	7.49	12.31	19.8
Kolkata	1	12.35	13.35
Madhya Pradesh	6.94	18.94	25.88
Maharashtra	12.79	26.66	39.45
Mumbai	0.75	21.72	22.48
North East	2.38	3.56	5.94
Odisha	5.67	6.54	12.2
Punjab	4.58	14.05	18.63
Rajasthan	9.47	16.99	26.46
Tamil Nadu	9.31	30.26	39.57
Uttar Pradesh (East)	14.46	20.29	34.75
Uttar Pradesh (West)	7.03	16.75	23.79
West Bengal	9.14	10.17	19.31
Total	145.82	348.12	493.95

14.1.3. Availability of Internet networks

(a) Geographic

Internet spread in India is fast increasing, with rural areas fast catching up with their urban counterparts. As per the above table, in December 2018 rural internet penetration was around 30 percent, while that of urban India was 70 percent. However, there are data showing that of the total active internet users, around 40 percent are from rural

³⁵⁸⁹ https://www.unicef.org/publications/files/SOWC_2017_ENG_WEB.pdf

³⁵⁹⁰ <https://www.tribuneindia.com/news/spectrum/internet-the-big-indian-gender-divide/737100.html>

³⁵⁹¹ https://www.business-standard.com/article/economy-policy/gender-gap-in-mobile-and-internet-usage-in-india-as-per-gsma-report-119030900696_1.html

³⁵⁹² <http://dot.gov.in/sites/default/files/statistical%20Bulletin-2018.pdf?download=1>

areas.³⁵⁹³

(b) Consumer choice

Consumers have the option to choose from the several telecom players. The table below shows the subscriber base as on June 2018 according to the service providers. It is evident that Bharti Airtel is more favoured by consumers as compared to other telecom service providers.

Table 2: Service Provider wise Subscribers Base (in Million) (wireless+wireline)³⁵⁹⁴

Service Provider	Subscription Base
Bharti Airtel	348.52
Vodafone	222.97
Idea	211.21
Reliance Jio	186.56
BSNL	123.95
Aircel	74.15
Reliance	1.11
Tata	33.07
Telenor	37.98
MTNL	6.90
Sistema	-
Quadrant	0.24
Total	1206.22

As far as subscription base is concerned, things have rapidly changed after the introduction of 4G by Reliance Jio with a very low tariff rate. There are only three 4G internet service providers in India after the consolidation phase and as of now the user base is evenly distributed between the three – Bharti Airtel has 87 million users, Reliance Jio has 82 million users and Vodafone-Idea has 81 million users.³⁵⁹⁵ The internet services of PSUs like BSNL and MTNL is still restricted to 3G.

(c) State-owned and private ownership

As per the above table, five top players,³⁵⁹⁶ Reliance Jio Infocomm Ltd (297.23 million subscribers), Bharti Airtel (112.13 million subscribers), Vodafone Idea (110.25 million subscribers), Bharat Sanchar Nigam Limited (BSNL) (21.01 million subscribers) and Tata

3593 <https://www.livemint.com/industry/telecom/internet-users-exceed-500-million-rural-india-driving-growth-report-1552300847307.html>

3594 <https://main.trai.gov.in/sites/default/files/PIRJune03102018.pdf>

3595 CLSA data in fourth quarter of FY19; <https://prime.economictimes.indiatimes.com/news/69834556/media-and-communications/dead-end-for-mobile-internet-why-millions-of-users-may-not-go-online-soon>

3596 https://main.trai.gov.in/sites/default/files/PR_No.27of2019_0.pdf

Teleservices (2.17 million subscribers) cumulatively hold 98.65% share of the market of broadband service providers in India.

As on January 31, 2019,³⁵⁹⁷ the private sector service providers have the higher market share of wireless subscribers (89.95%) while Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL), the two Public Sector Unit (PSU) internet service providers gripped a market share of only 10.05%.

Do they have the status of utilities? Are they subject to regulation?

In 2017, the Supreme Court of India observed that “citizens have the right to access the Internet to gain information, wisdom and knowledge and their right cannot be curtailed unless it encroaches into the boundary of illegality”.³⁵⁹⁸ In 2018, Kerala became the first state to declare internet access as a basic right for every citizen just like food, education and water.³⁵⁹⁹

Internet does have status of utilities in India, which can be inferred from Recommendation on Net Neutrality,³⁶⁰⁰ issued in 2017 by the Telecom Regulatory Authority of India (TRAI). TRAI has treated ‘High speed internet’ as one of the components of digital infrastructure as a utility to every citizen.³⁶⁰¹ The provision of digital Infrastructure in the form of availability of high speed internet for delivery of services to citizens is one of the overarching goals of the government of India.³⁶⁰² Currently, India lags behind globally in average internet speed– internet speed in India is 2.3 times lower than global averages for fixed mobile broadband and 2.5 times lower for mobile broadbands.³⁶⁰³

Internet is subject to regulations devised by the Telecom Regulatory Authority of India Act, 1997 along with regulations, orders and directions issued by TRAI and the Department of Telecommunications (DoT). Additionally, the Indian Telegraph Act, 1885 and the Wireless Telegraphy Act 1933, along with the rules framed thereunder are also applicable to availability of internet networks.

(a) Affordability of networks (general information about affordability of Internet access and distribution across income categories – if available)

Internet access, particularly mobile data, in India is quite affordable with 1 GB of data being available for just Indian Rupees (INR) 18.50 (US\$ 0.26) as compared to global average of about Rs.600.00.³⁶⁰⁴ Further, as per the 2018 Affordability of Internet report,

3597 https://main.trai.gov.in/sites/default/files/PR_No.22of2019_0.pdf

3598 <https://www.thehindu.com/news/national/right-to-access-internet-cannot-be-curtailed-says-sc/article17994420.ece>

3599 <https://www.indiatoday.in/technology/news/story/kerala-first-indian-state-declare-internet-basic-human-right-966265-2017-03-18>

3600 https://main.trai.gov.in/sites/default/files/Recommendations_NN_2017_11_28.pdf

3601 See slide 12 of the TRAI presentation at: https://main.trai.gov.in/sites/default/files/presentations_cv/Day-3_25Aug2017/Session2_Digital%20world/Digital%20Infra_Rajesh%20Sharma.pdf

3602 <https://digitalindia.gov.in/content/vision-and-vision-areas>

3603 [https://www.ey.com/Publication/vwLUAssets/ey-propelling-india-to-a-trillion-dollar-digital-economy/\\$FILE/ey-propelling-india-to-a-trillion-dollar-digital-economy.pdf](https://www.ey.com/Publication/vwLUAssets/ey-propelling-india-to-a-trillion-dollar-digital-economy/$FILE/ey-propelling-india-to-a-trillion-dollar-digital-economy.pdf)

3604 [//economictimes.indiatimes.com/articleshow/68285820.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst](http://economictimes.indiatimes.com/articleshow/68285820.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)

India ranks 8th amongst 61 countries (moving up nine places from 2017) in terms of providing access to affordable Internet.³⁶⁰⁵ The report credits this rise in India's ranking to increased investments in public access solutions and TRAI's support for a "competitive mobile market".³⁶⁰⁶

(b) Is universal service for Internet access available? What are the forms it takes?

India is yet to achieve universal internet access, however, National Digital Communications Policy 2018 (NDC Policy) targets universal access of internet in India by the year 2022.³⁶⁰⁷

14.2. Digital Economy Growth levels in your jurisdiction the last 5 years

14.2.1. Smart cities and networks development

As of February 2019, there are 100 cities with 5,151 ongoing projects under the Smart Cities Mission in India.³⁶⁰⁸ As such the term 'Smart Cities' do not have any definite categorical definition. However, for operational purposes, the term 'Smart Cities', have been defined as per the government's definition to mean a city whose entire urban eco-system is represented by the four pillars of comprehensive development that is institutional, physical, social and economic infrastructure. This is a long-term goal and cities can work towards developing such comprehensive infrastructure. .³⁶⁰⁹ 53% projects of the ongoing Smart Cities projects are currently at the tendering stage while 39% projects are either completed or in the implementation stage.³⁶¹⁰

The Indian government has also launched BharatNet³⁶¹¹ (earlier "National Optic Fibre Network" (NOFN)) with the objective to connect all the 250,000 gram panchayats (village governance units) in the country and to bridge the connectivity gap between villages and cities. Phase I of the BharatNet initiative has already started, and Phase II is being planned for swift implementation of optical fibres across the rural areas of the Indian states.

14.2.2. Corporate finance for the digital economy

The growth of digital economy in India is being fuelled by investments from various sources, including public and private investments. Private investments include domestic, foreign and institutional investments as well as venture capitals.

3605 https://a4ai.org/affordability-report/report/2018/#2018:_where_are_we_on_the_road_to_affordable_universal_internet_access?

3606 Ibid.

3607 <http://dot.gov.in/sites/default/files/EnglishPolicy-NDCP.pdf>

3608 <https://www.thehindubusinessline.com/specials/india-file/whats-smart-about-smart-cities/article26367835.ece>

3609 <http://smartcities.gov.in/content/innerpage/what-is-smart-city.php>

3610 Ibid.

3611 <http://www.usof.gov.in/usof-cms/NOFN.jsp>

14.2.3. How many consumers are actively engaging in e-commerce?

As of January 2019, there were about 176.8 million e-commerce users in India.³⁶¹² This is a steep increase from 40 million such users in 2013.³⁶¹³

14.2.4. Engagement with social networks

14.2.4.1 Most popular social networks in your jurisdiction

Facebook, WhatsApp, Twitter, Instagram, are some of the popular social networks in India. More recently, Tik Tok is also gaining popularity. Over 250 million Indian users are active on Facebook on a monthly basis, and over 200 million users are active on WhatsApp in India.³⁶¹⁴ Further, as per a recent announcement, YouTube now has over 295 million monthly active users in India.³⁶¹⁵

Table 3: Current Market Share of Social Media Networks in India³⁶¹⁶

Facebook	Pinterest	YouTube	Twitter	Instagram	LinkedIn
89.23%	4.05%	3.03%	1.96%	1.49%	0.08%

14.2.4.2. Do consumers practice single-homing or multi-homing regarding social networks?

Consumers often practice multi-homing regarding social networks.

14.2.5. Level of development of the IoT and Industry 4.0. in your jurisdiction

As per the report released by NASSCOM, the IoT market in India is poised to reach \$15 billion by 2020, accounting for 5% of the global market. The current number of IoT devices in India is around 60 million and the number is predicted to increase to 1.9 billion units by 2020.

3612 https://meity.gov.in/writereaddata/files/india_trillion-dollar_digital_opportunity.pdf

3613 Ibid.

3614 https://meity.gov.in/writereaddata/files/india_trillion-dollar_digital_opportunity.pdf, <https://www.financialexpress.com/industry/technology/whatsapp-now-has-1-5-billion-monthly-active-users-200-million-users-in-india/1044468/>

3615 <https://www.livemint.com/industry/media/youtube-hits-265-million-monthly-active-users-in-india-1554815017118.html>

3616 <http://gs.statcounter.com/social-media-stats/all/india>

14.2.6. Please specify the major digital platforms in your jurisdiction and their market penetration.

14.2.6.1. Concentration levels in your jurisdiction (if available) for:

- (a) *Internet access providers*: Five top players, namely, Reliance Jio Infocomm Ltd (297.23 million), Bharti Airtel (112.13 million), Vodafone Idea (110.25 million), BSNL (21.01 million) and Tata Teleservices (2.17 million) cumulatively hold 98.65% market share of total broadband subscribers in India.³⁶¹⁷ The top five Wired Broadband Service providers were BSNL (9.17 million), Bharti Airtel (2.33 million), Atria Convergence Technologies (1.41 million), Hathway Cable & Datacom (0.79 million) and MTNL (0.76 million).³⁶¹⁸ The top five Wireless Broadband Service providers were Reliance Jio Infocomm Ltd (297.23 million), Vodafone Idea (110.23 million), Bharti Airtel (109.80 million), BSNL (11.84 million) and Tata Teleservices (1.72 million).³⁶¹⁹
- (b) *Search engines (users)*: In India, Google holds 97.35% market share followed by other search engines such as Bing (1.68%), Yahoo (0.91%), DuckDuckGo (0.04%) and Baidu (0.01%).³⁶²⁰
- (c) *Social networks*: On a monthly basis, over 250 million Indian users are active on Facebook and over 200 million users are active on WhatsApp in India.³⁶²¹ Further, as per a recent announcement, YouTube now has over 295 million monthly active users in India.³⁶²²

As of third quarter of 2017, both YouTube and Facebook shared a 30% market penetration rate in India followed by WhatsApp with 28% market penetration.³⁶²³

14.2.7. Information about ownership (foreign or domestic, state-owned versus private)

The popular platforms show a combination of domestic and foreign ownership for private players and state-owned ownership for public players. Interestingly, there are no foreign ISPs.

³⁶¹⁷ https://main.trai.gov.in/sites/default/files/PR_No.27of2019_0.pdf

³⁶¹⁸ Ibid.

³⁶¹⁹ Ibid.

³⁶²⁰ <https://medium.com/@SearchDecoder/global-search-engine-market-share-for-2018-in-the-top-15-gdp-nations-2cf65c11e5f5>

³⁶²¹ https://meity.gov.in/writereaddata/files/india_trillion-dollar_digital_opportunity.pdf, <https://www.financialexpress.com/industry/technology/whatsapp-now-has-1-5-billion-monthly-active-users-200-million-users-in-india/1044468/>

³⁶²² <https://www.livemint.com/industry/media/youtube-hits-265-million-monthly-active-users-in-india-1554815017118.html>

³⁶²³ <https://www.statista.com/statistics/284436/india-social-network-penetration/>

- (a) Common ownership by major business players/conglomerates and institutional investors

Common institutional investment is visible in sectors such as ride hailing in India where the two prominent platforms, namely Ola and Uber with common ownership by SoftBank, Tiger Global Management LLC, Sequoia Capital and Didi Chuxing.³⁶²⁴

14.2.8. Please indicate any local large digital players and their market shares

Some of the local digital players enjoying high market shares in the digital sector have been listed below:

- (a) *Hotstar (Video Streaming platform)*: as of March 2018, Hotstar, owned by the Walt Disney Company India, enjoys 69.4% share in the video streaming market.³⁶²⁵
- (b) *Ola (Taxi-aggregator platform)*: Bhavish Agarwal and Ankit Bhati (founders of Ola) hold 11.95% of the company. Other individual investors for Ola are Ratan Tata, Anupam Mittal of People Group and Rehan Yar Khan of Orios Venture Partners. As of December 2017, Ola held 56.2% of market share in India's ride-hailing market.³⁶²⁶
- (c) *Oyo Rooms (Hotel Booking platform)*: Oyo Rooms, based out of Gurgaon, Haryana, gets substantial investment from SoftBank, Sequoia Capital, and Greenoaks Capital. As of December 2017, Oyo dominated 68% market share in the hospitality segment.³⁶²⁷
- (d) *Reliance Jio (Telecom service provider)*: as of September 2018, Reliance Jio, primarily owned by Reliance, enjoyed a market share of 31.6% in the telecom sector.³⁶²⁸
- (e) *Paytm (Payments wallet platform)*: Paytm owned by One97 Communications received funding last year from Alibaba Group and its affiliate Ant Financial (both China based investors). As of April 2017, Paytm held 68% market share in the payment wallets segment.³⁶²⁹
- (f) *Big Basket (Online grocery platform)*: as of 2018, Big Basket, a privately-owned company with funding from Alibaba, leads the online grocery market with 34% market share.³⁶³⁰

3624 <http://www.mondaq.com/india/x/721850/Antitrust+Competition/Common+Institutional+Investment+In+Ola+And+Uber+Does+Not+Warrant+Investigation+Not+Yet>

3625 <https://www.statista.com/chart/15939/indian-video-streaming-market-share/>

3626 <https://www.statista.com/chart/14650/ride-hailing-market-share-india/>

3627 <https://medium.com/@thekalagato/oyo-dominates-with-68-market-share-ee6baa28b3a9>

3628 <https://economictimes.indiatimes.com/industry/telecom/telecom-news/reliance-jio-tops-revenue-market-share-in-q3-jm-financials/articleshow/68141597.cms>

3629 <https://www.financialexpress.com/industry/paytm-hogs-market-share-at-68-vs-rival-freecharge-at-11-4-airtel-money-at-5-4/726968/>

3630 <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/private-labels-drive-online-grocery-players-into-profit-lane/articleshow/64969445.cms>

- (g) *Byju's (Online learning platform)*: Byju is India's leading online learning platform and now the world's most valued education technology firm. Byju's gets its majority investment from the Chan Zuckerberg Initiative (CZI), Sequoia Capital, Sofina, Verlinvest, etc.³⁶³¹
- (h) *Swiggy and Zomato (Online Food Delivery platform)*: as per a 2019 survey, Swiggy, privately owned, leads the ranking in online food delivery platforms followed by Zomato and UberEats.³⁶³²

14.2.9. What is the level of development of the blockchain economy in your jurisdiction?

India is largely into exploratory mode as far as implementation of blockchain technology is concerned. However, it is finding place in Indian policy discourses and may see blockchain use cases in near future.

In his budget speech in 2018, the Finance Minister of India announced the intention of the government to explore blockchain based solutions for strengthening the rapidly growing digital economy.³⁶³³ This announcement supplemented the Digital India campaign launched by the government in 2015 that emphasizes on building a digital infrastructure to digitally empower the country. To that end, the following cases may be highlighted:

- (a) **Bankchain**: Formed in 2017, it is an alliance of Indian and foreign banks to explore, build and implement blockchain based solutions for banking.³⁶³⁴ At present, the bankchain community comprises of 37 members with 28 Indian Banks and has 22 live projects.³⁶³⁵ State Bank of India was the first member of the Bankchain community, followed by other prominent banks such as ICICI Bank Ltd, Kotak Mahindra Bank Ltd, HDFC Bank Ltd and Yes Bank Ltd etc.
- (b) **Indiachain**: In 2018, the government launched its own blockchain initiative titled Indiachain which was developed by the country's think tank the National Institute for Transforming India (or NITI Aayog). It is intended to be used for supply chain management, land records, identity management, education certificates, benefit and power distribution, cross-border finance, and EHRs (electronic health records).³⁶³⁶ The government has also linked Indiachain with Indiastack, the country's unique

3631 <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/byjus-raises-540-million-from-naspers-ventures-cppib/articleshow/67127041.cms>

3632 <https://www.businesstoday.in/current/corporate/swiggy-beats-zomato-foodpanda-top-online-foodtech-company-in-consumer-satisfaction/story/311234.html>

3633 <https://www.livemint.com/Technology/UZlex6fPPyAqVuTHqpZiN/Transforming-India-through-blockchain.html>

3634 <http://www.bankchaintech.com/members.php>

3635 Ibid.

3636 <https://www.businessinsider.in/what-is-indiachain-a-blockchain-system-that-could-soon-be-the-heart-of-governance-in-india/articleshow/64676670.cms>

identification database for the Aadhar initiative, in order to track taxes coming from the entire country.

TRAI (the country's telecom regulator) is leveraging the use of blockchain to keep a check on Unsolicited Commercial Communication (UCC) or spam calls and safeguard the privacy of telecom users. Recently, an Indian IT firm launched a Blockchain solution, in collaboration with TRAI, to assist telecom providers in curbing spam calls.³⁶³⁷

14.3. What is the institutional framework for the digital economy in your jurisdiction?

14.3.1. An overview of regulatory and policy frameworks relevant for digital economy

The regulatory and policy framework related with digital economy is still evolving in India. While there are few existing binding laws, rules and regulations, there are many in the pipelines in draft form under consideration by the government. In addition, there are few policies, adopted as well as under consideration, which provide necessary direction and strategies vis-à-vis the emerging digital economy.

Following section provides an overview of relevant laws, rules, regulations and policies, both existing and those in draft form under consideration. The following overview captures the framework on 'as-it-is' basis and does not present any analysis.

14.3.1.1. The Information Technology Act 2000³⁶³⁸

The Information Technology Act 2000 (IT Act), which *inter alia* aims at providing "legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as —electronic commerce", is presently the most crucial binding instrument vis-à-vis the digital economy. The IT Act, which has extra territorial jurisdiction, was passed to give effect to the Model Law on Electronic Commerce,³⁶³⁹ which was adopted by the United Nations General Assembly vide resolution A/RES/51/162, dated the 30th January 1997.

According to the Act, 'data' means "a representation of information, knowledge, facts, concepts or instructions which are being prepared or have been prepared in a formalised manner, and is intended to be processed, is being processed or has been processed in a computer system or computer network, and may be in any form (including computer printouts magnetic or optical storage media, punched cards, punched tapes) or stored internally in the memory of the computer".³⁶⁴⁰ The Act also defines 'information', which

³⁶³⁷ <https://telecom.economictimes.indiatimes.com/news/tech-mahindra-launched-blockchain-solution-to-curb-spam-calls-in-india/69147376>

³⁶³⁸ <https://indiacode.nic.in/bitstream/123456789/1999/3/A2000-21.pdf>

³⁶³⁹ The Model Law was completed and adopted by United Nations Commission on International Trade Law

³⁶⁴⁰ Section 2(o) of the Information Technology Act, 2000

includes “data, message, text, images, sound, voice, codes, computer programmes, software and data bases or micro film or computer generated micro fiche”³⁶⁴¹.

The Act defines ‘intermediary,’ with respect to an electronic records, as “any person who on behalf of another person receives, stores or transmits that record or provides any service with respect to that record and includes telecom service providers, network service providers, internet service providers, web-hosting service providers, search engines, online payment sites, online-auction sites, online-market places and cyber cafes”.³⁶⁴² The intermediaries are required to preserve and retain information for prescribed duration and format.³⁶⁴³

The IT Act also provides for validity of contracts reached through electronic means. It says that “such contracts shall not be deemed to be unenforceable solely on the ground that such electronic form or means was used for that purpose”³⁶⁴⁴.

The Act further provides for compensation for failure to protect sensitive personal data due to negligence of the controller of such data. According to the Act, “where a body corporate, possessing, dealing or handling any sensitive personal data or information in a computer resource which it owns, controls or operates, is negligent in implementing and maintaining reasonable security practices and procedures and thereby causes wrongful loss or wrongful gain to any person, such body corporate shall be liable to pay damages by way of compensation to the person so affected”³⁶⁴⁵.

According to the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011,³⁶⁴⁶ (IT Security Rules 2011) sensitive personal data or information means such personal information³⁶⁴⁷ which consists of information relating to the following:³⁶⁴⁸

- Password
- financial information such as Bank account or credit card or debit card or other payment instrument details
- physical, physiological and mental health condition
- sexual orientation
- medical records and history
- biometric information

3641 Section 2(v), IT Act, 2000

3642 Section 2(w), IT Act, 2000

3643 Section 67C, IT Act, 2000

3644 Section 10A, IT Act, 2000

3645 Section 43A, IT Act, 2000

3646 Department of Information Technology published these Rules under Section 87(2), read with Section 43A, of the IT Act; <https://www.wipo.int/edocs/lexdocs/laws/en/in/in098en.pdf>

3647 “Personal information” means any information that relates to a natural person, which, either directly or indirectly, in combination with other information available or likely to be available with a body corporate, is capable of identifying such person; Section 2(i), Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011

3648 Rule 3, Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011

- any detail relating to the above as provided to body corporate for providing service
- any of the information received under above by body corporate for processing, stored or processed under lawful contract or otherwise

However, any information that is freely available or accessible in public domain or furnished under the Right to Information Act, 2005 (or any other laws) will not be regarded as sensitive personal data or information for the purposes of these Rules.

The IT Security Rules 2011 require body corporates to provide a privacy policy vis-à-vis personal information including sensitive personal data and ensure that these are available for view by such providers of information.³⁶⁴⁹ Further such policy also has to be published on website, including the following information:

- Type of personal or sensitive personal data or information collected
- Purpose of collection and usage of such information

The IT Security Rules 2011 also require body corporate to obtain consent in writing from sensitive data providers regarding purpose of usage before collection of such data. Sensitive personal data cannot be collected unless:

- the information is collected for a lawful purpose connected with a function or activity of the body corporate, and
- the collection of the sensitive personal data or information is considered necessary for that purpose³⁶⁵⁰

In addition, it needs to be ensured by the body corporates that person providing such data is having the following knowledge:

- the fact that the information is being collected
- the purpose for which the information is being collected
- the intended recipients of the information; and
- the name and address of (i) the agency that is collecting the information; and (ii) the agency that will retain the information

Further, the body corporates holding sensitive personal data or information not only are duty bound to use such data only for the purpose for which it has been collected (purpose limitation), but also to ensure that the same shall not be retained for longer than is required for such purposes. The data providers have the right to review their data upon demand.

Furthermore, prior to collection, the provider of information will have to be given the option to not provide data or information sought to be collected. The provider can also withdraw his/her consent, by intimation in writing. Any grievances of such providers with respect to processing of information will also have to be addressed by the body

³⁶⁴⁹ Rule 4, Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011

³⁶⁵⁰ Rule 5, *ibid*

corporate in a time bound manner (within one month). Name and contact details of a Grievance Officer have to be provided on the providers' website.³⁶⁵¹

Similarly, any transfer of the collected 'sensitive' personal data to any third party, whether in India or in any other country, may only take place when the third party adheres to the same level of data protection that is adhered by the transferee entity. Such transfer is allowed only if it is necessary for performance of the lawful contract between the body corporate and the provider of such information or when such person has consented to data transfer.³⁶⁵²

There is also duty upon such body corporates to keep the information secure, for which they are expected to comply with reasonable security practices and procedures, such as those provided under the International Standard IS/ISO/IEC 27001 on "Information Technology – Security Techniques – Information Security Management System – Requirements".³⁶⁵³ If any information security breach occurs, the body corporate would be required to demonstrate that it has implemented the documented information security programme and information security policies.

The IT Act also prescribes punishment, which includes imprisonment, for disclosure of information in breach of any lawful contract. Section 72A of the Act states that *"any person including an intermediary who, while providing services under the terms of lawful contract, has secured access to any material containing personal information about another person, with the intent to cause or knowing that he is likely to cause wrongful loss or wrongful gain discloses, without the consent of the person concerned, or in breach of a lawful contract, such material to any other person, shall be punished with imprisonment for a term which may extend to three years, or with fine which may extend to five lakh rupees, or with both"*.

The Act, however, exempts intermediaries from liability for any third-party information, data, or communication link made available or hosted by him in certain cases,³⁶⁵⁴ which includes:

- Where the function of the intermediary is limited to providing access to a communication system over which information made available by third parties is transmitted or temporarily stored or hosted, or
- Where the intermediary does not (i) initiate the transmission, (ii) select the receiver of the transmission, and (iii) select or modify the information contained in the transmission.

However, the intermediary is liable if: (i) it has conspired, abetted, aided or induced the commission of the unlawful act; or (ii) it fails to expeditiously remove or disable access to such information, upon receiving actual knowledge of the commission of unlawful act.

3651 Ibid

3652 Rule 7, Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011

3653 Rule 8, Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011

3654 See Section 79, IT Act, 2000

There are also the Information Technology (Intermediaries Guidelines) Rules, 2011,³⁶⁵⁵ notified under the IT Act,³⁶⁵⁶ which provide for the following due diligence to be observed by the intermediaries:

- The intermediaries are required to publish the rules and regulations, privacy policy and user agreement for access or usage of the intermediary's computer resource
- These rules etc. should inform the users of computer resource not to host, display, upload, modify, publish, transmit, update or share any information that:
 - belongs to another person and to which the user does not have any right;
 - is grossly harmful, harassing, blasphemous defamatory, obscene, pornographic, paedophilic, libellous, invasive of another's privacy, hateful, or racially, ethnically objectionable, disparaging, relating or encouraging money laundering or gambling, or otherwise unlawful;
 - harm minors in any way;
 - infringes any patent, trademark, copyright or other proprietary rights;
 - violates any law for the time being in force;
 - deceives or misleads the addressee about the origin of such messages or communicates any information which is grossly offensive or menacing in nature;
 - impersonate another person;
 - contains software viruses or any other computer code, files or programs designed to interrupt, destroy or limit the functionality of any computer resource;
 - threatens the unity, integrity, defence, security or sovereignty of India, friendly relations with foreign states, or public order or causes incitement to the commission of any cognisable offence or prevents investigation of any offence or is insulting any other nation.

A proposed amendment³⁶⁵⁷ to these Intermediary Guidelines seeks to further extend the above list and include information that:

- threatens public health or safety; promotion of cigarettes or any other tobacco products or consumption of intoxicant including alcohol and Electronic Nicotine Delivery System (ENDS) & like products that enable nicotine delivery, and
- threatens critical information infrastructure.

3655 https://meity.gov.in/writereaddata/files/GSR314E_10511%281%29_0.pdf

3656 Notified under clause (zg) of subsection (2) of section 87 read with sub-section (2) of section 79 of the Information Technology Act, 2000.

3657 draft Intermediaries Guidelines (Amendment) Rules, 2018; https://meity.gov.in/writereaddata/files/Draft_Intermediary_Amendment_24122018.pdf

These Guidelines also requires intermediaries, upon obtaining knowledge of any above-mentioned information, to act within 36 hours (the proposed amendment extends this to 72 hours) to disable such information. Further, intermediaries are required to follow the reasonable security practices and procedures as prescribed in the IT Security Rules 2011.

The intermediaries are also required to publish the name and contact details of the Grievance Officer as well as mechanism by which users or any victim of violation can notify their complaints. Such redressal should be done within one month from the date of receipt of complaint.

If the proposed amendment is adopted, intermediaries with more than five million users in India will have to be a company incorporated under Indian law with a permanent registered office in India and physical address. The amendment would also require such intermediary to appoint a nodal person in India for coordination with law enforcement agencies.³⁶⁵⁸

The IT Act also prescribes punishment for violation of privacy, though the 'privacy' here has a much narrower meaning constituting publication or transmission of images of private area of any person.³⁶⁵⁹ The Act provides powers to police officers to "enter any public place and search and arrest without warrant any person found therein who is reasonably suspected of having committed or of committing or of being about to commit any offence under this Act".³⁶⁶⁰

14.3.1.2. Draft Personal Data Protection Bill 2018³⁶⁶¹

Taking cognizance of the growing importance of data protection in India and the need to ensure growth of the digital economy while keeping personal data of citizens secure and protected, the Government of India on 31st July 2017 decided to constitute a Committee of Experts (the Committee) under the Chairmanship of Justice B N Srikrishna, Former Judge, Supreme Court of India, to identify key data protection issues in India and recommend methods of addressing them.³⁶⁶² The terms of reference included:

- To study various issues relating to data protection in India; and
- To make specific suggestions for consideration of the Central Government on principles to be considered for data protection in India and suggest a draft data protection bill.

Soon after the constitution of the Committee, the Supreme Court of India on 24th August, 2017 delivered its landmark judgement in the case of *Justice KS Puttaswamy and another vs. Union of India and others*, declaring "right to privacy" to be part of the fundamental

³⁶⁵⁸ Rule 3(7) of draft Intermediaries Guidelines (Amendment) Rules, 2018

³⁶⁵⁹ Section 66E, IT Act, 2000

³⁶⁶⁰ Section 80, IT Act, 2000

³⁶⁶¹ https://meity.gov.in/writereaddata/files/Personal_Data_Protection_Bill,2018.pdf

³⁶⁶² Vide Office Memorandum No.3(6)2017-CLES dated 31.07.17; https://www.meity.gov.in/writereaddata/files/MeitY_constitution_Expert_Committee_31.07.2017.pdf

“right to life” under Article 21 of the Constitution of India.³⁶⁶³ This judgement induced and added fuel to the public debate on data privacy and protection.

Towards the end of 2017, the Committee came out with a White Paper³⁶⁶⁴ on ‘Data Protection Framework for India’ and invited public comments³⁶⁶⁵ on it. It also conducted four country-wide stakeholders’ consultation meetings.³⁶⁶⁶ In July 2018, the Committee submitted to the Government its Report³⁶⁶⁷ titled “A Free and Fair Digital Economy – Protecting Privacy, Empowering Indians” along with a draft Personal Data Protection Bill (PDP Bill). Subsequently, the Government invited public feedback on the draft PDP Bill³⁶⁶⁸ and is still considering the draft and the government and approved by the Cabinet. The Bill will be introduced in the Parliament, and if passed will become the law of the land. The following paragraphs provide an overview of this draft PDP Bill.

(a) *Preamble:* The draft PDP Bill highlights that since right to privacy is a fundamental right, it is necessary to protect personal data. Further, recognising the criticality of use of data in the digital economy, the draft Bill seeks to “create a collective culture that fosters a free and fair digital economy, respecting the informational privacy of individuals, and ensuring empowerment, progress and innovation”.

Therefore, as per the draft Bill, it is expedient to make provisions with regard to the following:

- to protect the autonomy of individuals in relation with their personal data;
- to specify where the flow and usage of personal data is appropriate;
- to create a relationship of trust between persons and entities processing their personal data;
- to specify the rights of individuals whose personal data are processed; to create a framework for implementing organisational and technical measures in processing personal data;
- to lay down norms for cross-border transfer of personal data; to ensure the accountability of entities processing personal data;
- to provide remedies for unauthorised and harmful processing, and to establish a Data Protection Authority (the Authority) for overseeing processing activities.³⁶⁶⁹

(b) *Scope:* The draft PDP bill is proposed to apply to: (i) processing of personal data where such data has been collected, disclosed, shared or otherwise processed

3663 https://www.sci.gov.in/supremecourt/2012/35071/35071_2012_Judgement_24-Aug-2017.pdf

3664 https://meity.gov.in/writereaddata/files/white_paper_on_data_protection_in_india_18122017_final_v2.1.pdf

3665 <https://meity.gov.in/white-paper-data-protection-framework-india-public-comments-invited>

3666 https://meity.gov.in/writereaddata/files/public_consultation_on_white_paper.pdf

3667 https://meity.gov.in/writereaddata/files/Data_Protection_Committee_Report.pdf

3668 <https://meity.gov.in/content/feedback-draft-personal-data-protection-bill>

3669 Preamble, Page 1, draft Personal Data Protection Bill, 2018 (PDP Bill)

within the territory of India, and (ii) processing of personal data by the State and any Indian person (natural or juristic). The law would also apply to the processing of personal data outside India, if such processing is in connection with any business carried on in India or which involves profiling of data principals within the territory of India.³⁶⁷⁰

(c) *Key definitions:* The draft Bill defines the following terms:

- “Data” means and includes a representation of information, facts, concepts, opinions, or instructions in a manner suitable for communication, interpretation, or processing by humans or by automated means”.³⁶⁷¹ Accordingly, “Personal data” means “*data about or relating to a natural person who is directly or indirectly identifiable, having regard to any characteristic, trait, attribute or any other feature of the identity of such natural person...*”³⁶⁷².
- “data principal” means natural persons who provide data used for data processing by firms;³⁶⁷³
- “data fiduciary” is a person who determines the purpose and means of processing of personal data;³⁶⁷⁴
- “data processor” means any person, including the State, a company, any juristic entity or any individual who processes personal data on behalf of a data fiduciary, but does not include an employee of the data fiduciary.³⁶⁷⁵ Accordingly, “processing” is defined as operation(s) performed on personal data, including operations such as collection, recording, organisation, structuring, storage, adaptation, alteration, retrieval, use, alignment or combination, indexing, disclosure by transmission, dissemination, restriction, erasure or destruction;³⁶⁷⁶
- “sensitive Personal Data” has been defined³⁶⁷⁷ as personal data revealing/ related to/ constituting passwords; financial data; health data; official identifier; sex life; sexual orientation; biometric data; genetic data; transgender status; intersex status; caste or tribe; religious or political belief or affiliation; any other category of data specified by the Authority.

(d) *Data protection obligations:* According to the draft PDP Bill, a person processing personal data has to process it in a fair and reasonable manner that respects the privacy of the data principal.³⁶⁷⁸ Personal data has to be processed not only for purposes that are clear, specific and lawful, but also for specified purposes (or inci-

³⁶⁷⁰ Section 2, draft PDP Bill.

³⁶⁷¹ Section 3(12), draft PDP Bill.

³⁶⁷² Section 3(29), draft PDP Bill.

³⁶⁷³ Section 3(24), draft PDP Bill.

³⁶⁷⁴ Section 3(13), draft PDP Bill.

³⁶⁷⁵ Section 3(15), draft PDP Bill.

³⁶⁷⁶ Section 3(32), draft PDP Bill.

³⁶⁷⁷ Section 3(35), draft PDP Bill.

³⁶⁷⁸ Section 4, draft PDP Bill.

dental thereto) that the data principal would reasonably expect the personal data to be used for.³⁶⁷⁹ The draft Bill provides limits the collection of personal data to data that is necessary for the purpose of processing.³⁶⁸⁰ It also obliges processing of personal data only on grounds of processing provided in the Bill.³⁶⁸¹ (see section below).

Under the draft Bill, the data fiduciary will have to provide certain information (notice) to data principal, in a clear and concise manner that is comprehensible to a reasonable person, at the time of collection of the personal data.³⁶⁸² Such information includes:

- the purposes for which the personal data is to be processed;
- the categories of personal data being collected; the identity and contact details of the data fiduciary and the contact details of the data protection officer, if applicable;
- if the personal data is intended to be processed on the basis of consent, the right of the data principal to withdraw its consent, and the procedure for such withdrawal;
- if the processing of the personal data is based on the given grounds, the basis for such processing, and the consequences of the failure to provide such personal data;
- if the personal data is not collected from the data principal, the source of such collection;
- the individuals or entities including other data fiduciaries or data processors with whom such personal data may be shared,
- if applicable; information regarding any cross-border transfer of the personal data that the data fiduciary intends to carry out, if applicable;
- the period for which the personal data will be retained; the existence of and procedure for the exercise of data principal rights;
- the procedure for grievance redressal; the existence of a right to file complaints to the Authority;
- any rating in the form of a data trust score that may be assigned to the data fiduciary; any other information as may be specified by the Authority.

The draft bill further provides that in order to maintain data quality, the data fiduciary has to take reasonable steps to ensure that personal data processed is com-

3679 Section 5, draft PDP Bill.

3680 Section 6, draft PDP Bill.

3681 Section 7, draft PDP Bill.

3682 Section 8, draft PDP Bill.

plete, accurate, not misleading and updated.³⁶⁸³ The data fiduciary is also required to retain personal data only as long as may be reasonably necessary to satisfy the purpose for which it is processed, unless explicitly mandated.³⁶⁸⁴ The data fiduciary is also responsible for the compliance of the given obligations and for demonstrating that any processing undertaken by it are in accordance with the Act.³⁶⁸⁵

(e) *Grounds for processing personal data:* According to the draft Bill, personal data can be processed on the following grounds:

- On the basis of “free, informed, specific, clear and capable of being withdrawn” ‘consent’ of the data principal;³⁶⁸⁶
- If necessary, for the functions of the State;³⁶⁸⁷
- in compliance with law or any order of any Court or Tribunal in India;³⁶⁸⁸
- if necessary, for prompt action (e.g. to respond to medical emergency, to assist during epidemic, disaster, breakdown of public order etc.);³⁶⁸⁹
- If necessary, for purposes related to employment;³⁶⁹⁰
- for any reasonable purposes, as may be specified after considering certain given conditions.³⁶⁹¹

The draft Bill also provides grounds for processing of sensitive personal data, which are on the same lines as above but a bit stricter. For instance, it requires ‘explicit’ consent before being processed,³⁶⁹² or if it is ‘strictly’ necessary for the functions of State,³⁶⁹³ or has been ‘explicitly’ mandated under law,³⁶⁹⁴ or to respond to any emergency situations (like medical emergency).³⁶⁹⁵ The draft Bill empowers the Authority to create further categories of sensitive data.³⁶⁹⁶

The draft PDP Bill also provides for personal and sensitive personal data of children. As per the Bill, if a data principal is below the age of eighteen they will be treated as ‘child’ for the purposes of the Bill.³⁶⁹⁷ Every data fiduciary will need to

3683 Section 9, draft PDP Bill.

3684 Section 10, draft PDP Bill.

3685 Section 11, draft PDP Bill.

3686 Section 12, draft PDP Bill.

3687 Section 13, draft PDP Bill.

3688 Section 14, draft PDP Bill.

3689 Section 15, draft PDP Bill.

3690 Section 16, draft PDP Bill.

3691 Section 17, draft PDP Bill.

3692 Section 18, draft PDP Bill.

3693 Section 19, draft PDP Bill.

3694 Section 20, draft PDP Bill.

3695 Section 21, draft PDP Bill.

3696 Section 22, draft PDP Bill.

3697 Section 3(9), draft PDP Bill.

process personal data of children in a manner that protects and advances the rights and best interests of the child and would have to set up appropriate mechanisms for age verification and parental consent. Certain data fiduciaries can be designated as 'guardian data fiduciaries' with added obligations.³⁶⁹⁸

(f) *Rights of data principal:* The draft Bill specifies a number of rights of data principal which may be exercised by the data principal only when s/he makes such request in writing to the data fiduciary (except right to be forgotten). These rights include:

- Right to confirmation and access:³⁶⁹⁹ confirmation whether the data fiduciary is processing the data; summary of personal data being processed; brief summary of processing activities.
- Right to correction:³⁷⁰⁰ Correction of inaccurate, misleading or out of date personal data; Completion of incomplete personal data.
- Right to data portability;³⁷⁰¹
- Right to receive personal data in a structured, commonly used and machine-readable format including personal data provided by data principal; data that has been generated in the course of provision of services or use of goods by the data fiduciary; data that forms part of any profile on the data principal or which the data fiduciary has otherwise obtained;
- Right to transfer the above-mentioned personal data to any other data fiduciary. This right only applies where the processing has been done through automated means and shall not apply where processing is necessary for functions of the State; or processing is in compliance of law; or the right to data portability would reveal a trade secret of any data fiduciary or would not be technically feasible;
- Right to be forgotten:³⁷⁰² Disclosure of personal data can be restricted by the data principal where such disclosure has served the purpose for which it was made or is no longer necessary or consent has been withdrawn or was made contrary to law.

(g) *Transparency and accountability measures:* The draft Bill has a long list of measures with respect to transparency and accountability that the data fiduciary has to follow. These include:

- every data fiduciary has to have 'privacy by design',³⁷⁰³ for which, among other things, it would need to implement measures to ensure the following: manage-

3698 Section 23, draft PDP Bill.

3699 Section 24, draft PDP Bill.

3700 Section 25, draft PDP Bill.

3701 Section 26, draft PDP Bill.

3702 Section 27, draft PDP Bill.

3703 Section 29, draft PDP Bill.

rial, organisational, business practices and technical systems are designed in a manner to anticipate, identify and avoid harm to the data principal; the data protection obligations mentioned above;³⁷⁰⁴ technology used in processing to be of certified standards; legitimate interests of businesses, including any innovation, is achieved without compromising privacy interests; privacy to be protected throughout the processing – from collection to deletion of personal data and the interest of data principal is accounted for at every stage; processing of personal data is carried out in a transparent manner.

- in order to maintain ‘transparency’, the data fiduciary would have to make the certain information available, including:³⁷⁰⁵ the categories of personal data generally collected and the manner of such collection; the purposes for which personal data is generally processed; the existence of and procedure for the exercise of the given rights of data principal; any rating in the form of a data trust score that may be accorded to the data fiduciary; information regarding cross-border transfers of personal data that the data fiduciary generally carries out.
- according to the draft Bill, the data fiduciary would have to maintain ‘security safeguards’ taking into account the risks associated with data processing, likelihood and severity of harm that may result from such processing.³⁷⁰⁶ Such measures should include methods such as de-identification and encryption; steps to protect the integrity of personal data; and steps to prevent misuse, unauthorised access to, modification, disclosure or destruction of personal data.
- in case of ‘personal data breach’, the data fiduciary would have to notify the Authority, along with certain given information, as soon as possible but certainly within a specified time period (to be decided by the Government). After receiving the notification, the Authority will determine whether such breach should be reported to the data principal.³⁷⁰⁷

Further, if processing involves new technologies or large scale profiling or use of sensitive personal data, data fiduciary will have to undertake a “data protection impact assessment” before commencing such processing.³⁷⁰⁸ Also the data fiduciary have to get its policies etc. audited annually by an independent data auditor.³⁷⁰⁹ Every data fiduciary will have a data protection officer to carry out various given functions.³⁷¹⁰ If data fiduciaries outsource the processing to other entities they are required to do so through a valid contract between them and the third party entities.³⁷¹¹

3704 See sections 4 to 11 of the draft PDP Bill.

3705 Section 30, draft PDP Bill.

3706 Section 31, draft PDP Bill.

3707 Section 32, draft PDP Bill.

3708 Section 33, draft PDP Bill.

3709 Section 35, draft PDP Bill.

3710 Section 36, draft PDP Bill.

3711 Section 37, draft PDP Bill.

There are provisions in the draft Bill whereby certain data fiduciaries or classes of data fiduciaries can be categorised as “significant data fiduciaries”³⁷¹², based on the following factors:

- volume of personal data processed;
- sensitivity of personal data processed;
- turnover of the data fiduciary;
- risk of harm resulting from any processing or any kind of processing undertaken by the fiduciary;
- use of new technologies for processing;
- any other factor relevant in causing harm to any data principal as a consequence of such processing.

Those categorised as ‘significant data fiduciaries’ are required to register themselves with the Authority and to undertake certain mandatory obligations such as data protection impact assessment.

As per the draft PDP Bill, every data fiduciary will have to put in place proper procedures and effective mechanisms to address grievances of data principals. Any grievance raised will have to be resolved in an expeditious manner and completed within 30 days from the date of receipt of grievance. If data principal is not satisfied, it can file a complaint to the ‘adjudication wing’ set up under the Act, whose orders are appealable to the Appellate Tribunal.³⁷¹³

(h) *Cross-border transfer of personal data:* Under the draft Bill, data fiduciaries have to ensure that at least one serving copy of personal data is stored on a server or data centre located in India.³⁷¹⁴ However, the government may exempt certain categories of personal data (not sensitive personal data) from this requirement. In addition, the government is also empowered to notify certain categories of personal data as ‘critical personal data’, which may only be processed in servers/data centres located in India.

General conditions under which cross-border transfer of personal data (not sensitive personal data) may take place include:

- If the transfer is made subject to standard contractual clauses or intra-group schemes that have been approved by the Authority;
- The Central Government, after consultation with the Authority, has prescribed that transfers to a particular country, or to a sector within a country or to a particular international organisation is permissible (if it finds that the relevant personal data shall be subject to an adequate level of protection);
- The Authority approves a particular transfer or set of transfers as permissible due to a situation of necessity;

³⁷¹² Section 38, draft PDP Bill.

³⁷¹³ Section 39, draft PDP Bill.

³⁷¹⁴ Section 40, draft PDP Bill.

- The data principal has consented to such transfer of personal data.
- (i) *General exemptions:* The draft Bill exempts, sometimes with conditions, the following activities from applicability of the main provisions of the Act.
- For the security of state personal data can be processed, but only if it is authorised by law and necessary for, and proportionate to, such interests being achieved;³⁷¹⁵
 - If disclosure of personal data is necessary for enforcing any legal right or claim, seeking any relief, defending any charge, opposing any claim, or obtaining any legal advice from an advocate;³⁷¹⁶
 - If processing of personal data is necessary for research, archiving, or statistical purposes;³⁷¹⁷
 - Personal data processed by a natural person for purely personal or domestic purpose;³⁷¹⁸
 - If the processing of personal data is necessary for or relevant to a journalistic purpose;³⁷¹⁹
 - If personal data is processed through means other than automated means by a small entity.³⁷²⁰
- (j) *Data Protection Authority:* The draft Bill, if becomes law, will establish a six-member Data Protection Authority, which will protect the interests of data principals, prevent any misuse of personal data, ensure compliance with the provisions of this Act, and promote awareness of data protection.³⁷²¹
- If there happens to be any concurrent jurisdiction of any other regulator upon any actions proposed by the Authority, the draft Bill requires that the Authority shall consult such regulator before taking such action. The Authority may also enter into a memorandum of understanding with such other regulator for coordination of actions.³⁷²² The draft Bill also mandates establishment of an Appellate Tribunal.³⁷²³
- (k) *Offences:* The draft Bill prescribes following acts as offences liable to imprisonment and/or pecuniary fines:

3715 Section 42, draft PDP Bill.

3716 Section 44, draft PDP Bill.

3717 Section 45, draft PDP Bill.

3718 Section 46, draft PDP Bill.

3719 Section 47, draft PDP Bill.

3720 Section 48, draft PDP Bill.

3721 Sections 49, 50 and 60, draft PDP Bill.

3722 Section 67, draft PDP Bill.

3723 Section 79, draft PDP Bill.

- Up to three years imprisonment and/or fine up to INR 0.2 million if a person knowingly or intentionally or recklessly, in contravention of the provisions of this Act:³⁷²⁴
 - obtains personal data; or
 - discloses personal data; or
 - transfers personal data to another person; or
 - sells or offers to sell personal data to another person.
- If such acts, as stated above, involve sensitive personal data, imprisonment can extend to five years and/or fine up to INR 0.3 million.³⁷²⁵

According to the draft Bill, in cases of offence committed by a company, every person in charge of, and responsible to, the company for such conduct shall be deemed to be guilty and would be liable to be proceeded against and punished accordingly.³⁷²⁶

(l) *Penalties and remedies:* The draft Bill contains varied penal provisions for various contraventions of its provisions. For instance, if data fiduciary contravenes (a) the obligation to take prompt and appropriate action in response to a data security breach, or (b) the obligation to undertake 'data protection impact assessment' or 'data audit' or 'appointment of a data protection officer' or 'failure to register with the Authority' by a 'significant' data fiduciary, it shall be liable to penalties up to INR 50million or two percent of its total worldwide turnover of the preceding financial year, whichever is higher.³⁷²⁷

Penalties to data fiduciaries can extend up to INR 150 million or four percent of total worldwide turnover, if they contravene any of following provisions:³⁷²⁸

- processing of personal data in violation of the provisions of Chapter II and Chapter III;
- processing of sensitive personal data in violation of the provisions of Chapter IV;
- processing of personal data of children in violation of the provisions of Chapter V;
- failure to adhere to security safeguards as per the Act;
- transfer of personal data outside India in violation of this Act.

Data fiduciaries would be liable to pay INR 5000/- per day if they fail to comply with requests made by data principal with respect to their rights assigned under the Act.³⁷²⁹ Data principals have the right to seek compensation from data fiduciary (or data processor) if they have suffered harm as a result of violation of any provision under this Act.³⁷³⁰

3724 Section 90, draft PDP Bill.

3725 Section 91, draft PDP Bill.

3726 Section 95, draft PDP Bill.

3727 Section 69(1), draft PDP Bill.

3728 Section 69(2), draft PDP Bill.

3729 Section 70, draft PDP Bill.

3730 Section 75, draft PDP Bill.

(m) *Others*: The draft bill confers on the Central Government the power to make 'rules'³⁷³¹, and on the Authority the power to make 'regulations'³⁷³² to carry out the purposes of the Act.

The draft Bill, if becomes law, would repeal sections 43A and 87(2)(ob) of the Information Technology Act, 2000.³⁷³³ Section 43A of the IT Act provides for compensation for failure to protect data. Section 87(2)(ob) of the IT Act empowers the Central Government to make rules with respect to "the reasonable security practices and procedures and sensitive personal data or information under section 43A".

14.3.1.3. RBI Notification on Storage of Payment System Data 2018

On 6th April 2018 the Reserve Bank of India issued a notification on Storage of Payment System Data³⁷³⁴ under Section 10(2) read with Section 18 of Payment and Settlement Systems Act 2007.³⁷³⁵ The notification states that: *"In order to ensure better monitoring, it is important to have unfettered supervisory access to data stored with these system providers as also with their service providers / intermediaries/ third party vendors and other entities in the payment ecosystem"*.

For this purpose, RBI decided that: "All system providers shall ensure that the entire data relating to payment systems operated by them are stored in a system only in India. This data should include the full end-to-end transaction details/information collected/ carried/ processed as part of the message/payment instruction. For the foreign leg of the transaction, if any, the data can also be stored in the foreign country, if required".

The system providers were given six months (till 15th October 2018) to comply with the new norm and were also required to submit System Audit Report by 31st December 31, 2018.

Despite deep resentment shown by many global players in the market, they have begun to comply with this data localisation norm. The criticism was largely focused on the nexus between the objective (to have unfettered supervisory access to data) and the measure suggested (data localisation) – is it necessary to store data locally in order to have unfettered access to data?

14.3.1.4. Press Note 2 of 2018 (FDI Rules on e-commerce)

The Consolidated FDI Policy 2017³⁷³⁶ (FDI Policy) clarified further by the Press Note 2 of 2018,³⁷³⁷ (PN2) forms the basis of regulating e-commerce from foreign investment perspective.

3731 Section 107, draft PDP Bill.

3732 Section 108, draft PDP Bill.

3733 Section 111, draft PDP Bill.

3734 <https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11244>

3735 <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/86706.pdf>

3736 https://dipp.gov.in/sites/default/files/CFPC_2017_FINAL_RELEASED_28.8.17_1.pdf

3737 https://dipp.gov.in/sites/default/files/pn2_2018.pdf

According to the FDI Policy, 100 percent FDI through automatic route is allowed for “Cash & Carry Wholesale Trading/Wholesale Trading”.³⁷³⁸ Further, as far as retail trading is concerned, the FDI Policy makes a distinction between ‘Single Brand Product Retail Trading’ (SRBT) and ‘Multi Brand Retail Trading’ (MRBT). While 100% FDI (automatic up to 49%, government route beyond 49%) is allowed in SRBT,³⁷³⁹ only up to 51% FDI is allowed in MRBT and that too through government route³⁷⁴⁰. (Government route means that prior approval of government is required for such FDIs; in automatic route no such prior approval is required).³⁷⁴¹ In addition, more stringent conditions apply to MBRT than SBRT.

PN2³⁷⁴² applies to e-commerce activities. It defines e-commerce as “buying and selling of goods and services including digital products over digital & electronic network”.³⁷⁴³ According to PN2, though 100% FDI is allowed in e-commerce activities through automatic route,³⁷⁴⁴ the foreign e-commerce entity (platform) can only engage in Business to Business (B2B) e-commerce and not in Business to Consumer (B2C) e-commerce.³⁷⁴⁵ For such B2B e-commerce, guidelines/conditions on cash and carry wholesale trading as given in the FDI Policy will apply.

Further, the PN2 distinguishes between inventory-based model³⁷⁴⁶ and marketplace-based model³⁷⁴⁷ of e-commerce. While 100% FDI under automatic route is permitted in marketplace model of e-commerce, no FDI is permitted in inventory-based model.³⁷⁴⁸ However, several conditions are also applicable, some of which are:

- Marketplace e-commerce entities can enter into transactions with sellers registered on its platform on B2B basis;³⁷⁴⁹
- E-commerce marketplace may provide support services (like warehousing, logistics, order fulfilment, payment collection etc.) to sellers,³⁷⁵⁰ but the same need to be in a fair and non-discriminatory manner;³⁷⁵¹

3738 Para 5.2.15.1 of the FDI Policy, 2017.

3739 Para 5.2.15.3 FDI Policy.

3740 Para 5.2.15.4 of the FDI Policy, 2017

3741 Para 5.2.15.4 FDI Policy.

3742 Issued on 26 December 2018 in order to provide clarity to FDI Policy on e-commerce sector and is in force since 01 February 2019.

3743 Para 5.2.15.2.2 (i) of PN2.

3744 Para 5.2.15.2 of PN2.

3745 Para 5.2.15.2.1 of 8PN2.

3746 As per para 5.2.15.2.2 (iii) of PN2, inventory -based model of e-commerce means an e-commerce activity where inventory of goods and services is owned by e-commerce entity and is sold to the consumers directly.

3747 As per para 5.2.15.2.2 (iv) of PN2, marketplace -based model of e-commerce means providing of an information technology platform by an e-commerce entity on a digital & electronic network to act as a facilitator between buyer and seller.

3748 Para 5.2.15.2.3 of PN2.

3749 Para 5.2.15.2.4(ii) of PN2.

3750 Para 5.2.15.2.4(iii) of PN2.

3751 Para 5.2.15.2.4(ix) of PN2.

- E-commerce entity providing marketplace will not exercise ownership or control over any vendor on its platform. Inventory of a vendor will be deemed to be controlled by e-commerce marketplace entity if more than 25 percent of purchases of such vendor are from e-commerce marketplace entity or its group companies;³⁷⁵²
- Entities, in which the group e-commerce entity or its group companies have equity participation or whose inventory is controlled by the e-commerce marketplace entity or its group companies, will not be allowed to sell its products on the platform of such marketplace entity;³⁷⁵³
- E-commerce entities providing marketplace shall refrain from influencing the sale price of goods or services, directly or indirectly, and shall maintain level playing field;³⁷⁵⁴
- E-commerce market-place entity will not mandate any seller to sell any product exclusively on its platform only.³⁷⁵⁵

14.3.1.5. Draft National e-Commerce Policy 2019

On 23rd February 2019, the Government of India (Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry) issued draft National e-Commerce Policy³⁷⁵⁶ inviting stakeholders' comments (NEC Policy). The draft NEC Policy, bearing tag line "India's Data for India's Development", emphasizes the importance of data in the digital economy.

According to the draft NEC Policy, e-commerce includes "buying, selling, marketing or distribution of (i) goods, including digital products and (ii) services, through electronic network. Delivery of goods, including digital products, and services may be online or through traditional mode of physical delivery. Similarly, payments against such goods and services may be made online or through traditional banking channels i.e. cheques, demand drafts or through cash".³⁷⁵⁷

The draft NEC Policy addresses six broad issues of the e-commerce ecosystem – (i) data, (ii) infrastructure development, (iii) e-commerce marketplaces, (iv) regulatory issues, (v) stimulating domestic digital economy, and (vi) export promotion through e-commerce.³⁷⁵⁸ It identifies critical aspects of each issue and lays out strategies to achieve the Government's vision, which includes *inter alia* "protecting misuse of data" and "providing level-playing field to all stakeholders, including individual consumers and micro,

3752 Para 5.2.15.2.4(iv) of PN2.

3753 Para 5.2.15.2.4(v) of PN2.

3754 Para 5.2.15.2.4(ix) of 8PN2.

3755 Para 5.2.15.2.4(xi) of PN2.

3756 <https://dipp.gov.in/whats-new/draft-national-e-commerce-policy-stakeholder-comments>

3757 p9, draft NEC Policy; https://dipp.gov.in/sites/default/files/DraftNational_e-commerce_Policy_23February2019.pdf

3758 p9, draft NEC Policy.

small and medium enterprises (MSMEs) and start-ups”.³⁷⁵⁹ The draft policy recognises abuse of data as a major threat to the privacy of users, fair competition in the market and sustainability of MSMEs and start-ups. It seeks to create a regulatory environment to ensure that there is genuine competition in the market, which encourages entrepreneurship and innovation.

(a) *Data*: As far as ownership over data is concerned, the draft NEC Policy suggests that the companies having control of over data do not own the data which they process and monetise. The draft policy also treats ‘data’ as analogous to natural resources and states that “the data of a country, is best thought of a collective resource, a national asset, that the government holds in trust, but rights to which can be permitted”.³⁷⁶⁰

The draft NEC Policy further says that *“India and its citizens have a sovereign right to their data. This right cannot be extended to non-Indians. This understanding flows from the acknowledgement that data about an Indian, is his/her own. Even after anonymization, the interests of the individual cannot be completely separated from the derivatives that may be obtained by analysing and drawing inferences from a certain set of data. Data can, therefore, best be likened to a societal ‘commons’. National data of various forms is a national resource that should be equitably accessed by all Indians. The same way that non-Indians do not have access to the national resources on the same footing as Indians, non-Indians do not have equal rights to access Indian data. However, access to it can be negotiated, in national Interest.”*³⁷⁶¹

The draft NEC Policy also has flavour of proposing data localisation, which, according to it, is not only necessary for creation of high-value digital products in the country but also for creating local jobs. The draft policy calls for a timeframe for transition to data storage within India and gives a period of three years for industries to adjust to the data storage requirement.³⁷⁶² It proposes the following strategy with respect to cross border flow of data:³⁷⁶³

- Creation of a legal and technological framework to impose restrictions on cross-border data flow (including data generated by users in India on ecommerce platforms, social media, search engines etc.);
- Business entities that collect or processes any sensitive data³⁷⁶⁴ in India and stores it abroad will have to abide by the following conditions:
 - All such data stored abroad shall not be made available to other business entities outside India, for any purpose, even with the customer consent;

3759 p36, draft NEC Policy.

3760 p14, draft NEC Policy.

3761 p14-15, draft NEC Policy.

3762 See p18 of draft NEC Policy.

3763 See p16-17 of draft NEC Policy.

3764 The draft NEC Policy does not define ‘sensitive data’.

- All such data stored abroad shall not be made available to a third party, for any purpose, even if the customer consents to it;
- All such data stored abroad shall not be made available to a foreign government, without the prior permission of Indian authorities;
- A request from Indian authorities to have access to all such data stored abroad, shall be complied with immediately;
- Restrictions on cross-border flows of data shall not apply to the following:
 - Data that is not collected in India;
 - B2B data sent to India as part of a commercial contract between a business entity located outside India and an Indian business entity;
 - Software and cloud computing services involving technology-related data flows, which have no personal or community implications; and
 - MNCs moving data across borders, which is largely internal to the company and its ecosystem and does not contain data that has been generated by users in India.

The draft NEC Policy also calls for development of a “suitable framework for sharing of community data that serves larger public interest (subject to addressing privacy-related issues) with start-ups and firms”.³⁷⁶⁵

(b) Regulation of marketplace: According to the draft NEC Policy, the FDI Policy in e-commerce has been developed “to ensure that the marketplace provides a level playing field to all participants, while ensuring that distortionary effects, either through means of price control, inventory or vendor control does not happen”.³⁷⁶⁶ It also discourages capital dumping. Allowing FDI only in the ‘marketplace’ model (as against inventory-based model), the draft policy endeavours to mitigate threats to small offline retailers from foreign investors. It also discourages business models that are discriminatory favouring few online vendors over others.

The draft NEC Policy also demands that all e-commerce platforms available for download in India must have a registered entity in India. This, according to it, is important for ensuring compliance with laws for preventing deceptive and fraudulent practices, protection of privacy, safety and security.³⁷⁶⁷ The draft policy also requires e-commerce entities to make full disclosure to consumers regarding the ‘purpose’ and ‘use’ of data collected.³⁷⁶⁸

In order to prevent sale of counterfeit products, e-commerce entities have to undertake following measures:³⁷⁶⁹

³⁷⁶⁵ p17, draft NEC Policy.

³⁷⁶⁶ p19, draft NEC Policy.

³⁷⁶⁷ p20, draft NEC Policy.

³⁷⁶⁸ Para 3.8, p21, draft NEC Policy.

³⁷⁶⁹ Para 3.9 to 3.17, p21-22, draft NEC Policy.

- Full details of sellers for all products.
- An undertaking by the sellers to the platform about genuineness of products, which must be accessible to consumers. The platform shall enter into an agreement with each of the sellers on its platform, under which it shall obtain guarantee of authenticity and genuineness of the products sold by the seller, and also provide for consequences of violation of the same.
- E-commerce platforms to give options to trademark (TM) owners to register themselves, who will be notified whenever any product bearing the TM is offered for sale on the platform.
- E-commerce platforms shall not list or offer for sale, any of the TM owners' products without prior concurrence, if such owners desire.
- In certain products (such as cosmetics or goods having impact on public health), e-commerce marketplaces would have to seek TM owner's authorisation (that is, authorized/distributor/reseller agreement) before listing the product.
- Upon receiving complaint about a product being fake/counterfeit, the platform owner shall convey to the owner of the TM within 12 hours. In case of product being fake it would be removed from the list.
- Though post-sale, delivery of goods to the customers and customer satisfaction will be responsibility of the seller, there is a caveat to this. Since counterfeiting is a major concern, in case a customer makes a complaint to that effect, marketplaces would have liability to return the amount paid by the customer.
- Marketplaces should provide for creation of financial disincentives for sellers, if found to be selling counterfeit products (can also blacklist that seller).

The draft NEC Policy recommends the following anti-piracy measures and strategies:³⁷⁷⁰

- Intermediaries will have to put in place measures to prevent online dissemination of pirated content.
- If brought to notice by the owner of copyright protected content, the e-commerce platform (or website) will have to remove or disable access to copyrighted content being made available without prior permission of the owner.
- Creation of a body of industry stakeholder to identify 'rouge website', which can be included in 'Infringing Websites List' (IWL) after verification. Following measures can be taken on such websites:
 - Internet service providers will have to remove or disable access to the websites identified in the IWL;
 - Payment Gateways to stop flow of payments to such websites;
 - Search Engines to remove such websites, in their search results;
 - Stopping of hosting any advertisements on such websites.

³⁷⁷⁰ Para 3.18 to 3.20, p22-23, draft NEC Policy.

In addition to the above, the NEC Policy requires marketplaces to take the following measures:

- To ensure transparency and non-discrimination in publishing of ratings and reviews and to devise mechanisms to prevent fraudulent reviews and ratings by the sellers and their affiliates. All ratings and reviews should be published by the verified consumer.³⁷⁷¹
- Mandatorily display phone number and email address for consumer grievances as well as putting in place system of acknowledgment of consumer complaints with clear cut timelines for their disposal. First resolution to all consumer complaints must be provided within one week.³⁷⁷²
- To display list of products that are legally prohibited to be sold. In addition, sellers must provide an undertaking to the platform (accessible to the consumers) that they are not engaged in sale of prohibited products. In case it is found that such products are being sold, platform shall remove listing of such products within 24 hours. Such sellers can also be blacklisted, and the relevant authorities notified. Platform can also be made liable.³⁷⁷³

Furthermore, among other things, the draft NEC Policy also suggests that India should move towards electronic redressal of consumer grievances and use the concept of 'significant economic presence' for taxation purposes to determine allocation of profits of MNCs between 'resident' and 'source' countries. It also suggests review of the current practice of not imposing custom duties on electronic transmissions.³⁷⁷⁴

The draft NEC Policy also emphasises the importance of introducing measures to ensure responsibility and liability of platforms and social media to ensure genuineness of any information posted on the same.³⁷⁷⁵

The draft NEC Policy also flags the need for formulation of domestic industrial standards for smart devices and IoT devices to country's goal such as consumer protection, secured transactions, enhanced interoperability and ease-of-user interface.³⁷⁷⁶

Recognising that Artificial Intelligence, Big Data, deep learning etc. are going to take centre-stage in near future, the draft policy suggests that the Government should reserve its right to seek disclosure of source codes and algorithms. The draft policy specifically states that "there is a need to strike a balance between commercial interests and consumer protection issues, as well as issues of larger public concern, like preventing racial profiling and maintaining constitutionally mandated rights, such as the right to equality".³⁷⁷⁷

3771 Para 3.21-3.22, p23, draft NEC Policy.

3772 Para 3.23-3.25, p23, draft NEC Policy.

3773 Para 3.26 to 3.29, p23, draft NEC Policy.

3774 Page 27-28, draft NEC Policy.

3775 Page 29, draft NEC Policy.

3776 Para 5.1, p30, draft NEC Policy.

3777 Para 4.10, page 27, draft NEC Policy.

There has been widespread criticism of the draft policy, particularly the way it has treated 'data'. The government has received several comments and is presently reviewing these. A final policy on e-commerce is still awaited.

14.3.1.6. Draft e-Pharmacy Rules 2018

In August 2018, the Government of India (Ministry of Health and Family Welfare) published draft rules called as Drugs and Cosmetics (Amendment) Rules 2018.³⁷⁷⁸ These rules amended the Drugs and Cosmetics Rules 1945 in order to regulate the growing e-pharmacy. After receiving market. Government has invited stakeholder comments, on the government's draft 2018 Rules and the approved rules are yet to publish the final Rules.

According to the draft 2018 Rules, registration of e-pharmacy under Drugs and Cosmetics Act is mandatory and no person can distribute or sell, stock, exhibit or offer for sale of drugs through e-pharmacy portal unless registered. Following are the conditions of registration of e-pharmacy under the draft 2018 Rules:³⁷⁷⁹

- An e-pharmacy shall comply with provisions of Information Technology Act, 2000 and Rules made thereunder;
- The details of patient shall be kept confidential and shall not be disclosed to any person other than the Government;
- The supply of any drug shall be made against a cash or credit memo generated through the e-pharmacy portal and such memos shall be maintained by the e-pharmacy as record;
- The e-pharmacy shall not carry out online sale with respect to the narcotic and psychotropic drugs (as referred to in the Narcotic Drugs and Psychotropic Substances Act, 1985), tranquilizers and the drugs as specified in Schedule X of Drugs and Cosmetics Rules 1945.

The draft 2018 Rules further require that any information received by the e-pharmacy from the customer by way of prescription or in any other manner shall not be disclosed for any other purposes nor shall same be disclosed to any other person.³⁷⁸⁰ However, such e-pharmacy entity would be duty bound to share such information with the government as and when required for public health purposes.³⁷⁸¹ Most importantly, the draft 2018 Rules require that an e-pharmacy portal be established in India and data generated or mirrored through e-pharmacy portal not be sent or stored outside India.³⁷⁸²

3778 [http://www.cdsco.nic.in/writereaddata/2018_08_28_Draft%20GSR%20817\(E\)_Sale%20of%20Drugs%20by%20E-Pharmacy.pdf](http://www.cdsco.nic.in/writereaddata/2018_08_28_Draft%20GSR%20817(E)_Sale%20of%20Drugs%20by%20E-Pharmacy.pdf)

3779 Rule 67M draft 2018 Rules.

3780 Rule 67K Para (1) draft 2018 Rules.

3781 Rule 67K Para (2) draft 2018 Rules.

3782 Rule 67K Para (3) draft 2018 Rules.

In 2018, two High Courts – Delhi and Madras – heard petitions against online pharmacy portals and directed the Central Government to publish the final e-pharmacy rules. The Delhi High Court, on 12 December 2018, banned online sale of medicines without licence.³⁷⁸³

The Madras High Court, in first instance (Single Bench), had also banned the online sale of pharmacy till adequate regulations are in place, saying: *“as the draft rules are framed by the Central Government, after deliberations including the stakeholders, till the aforesaid rules are notified, the on-line traders are bound not to proceed with their on-line business in drugs and cosmetics”*.³⁷⁸⁴ This decision was appealed by aggregators who informed the court that they are not violating any rules or regulations under the Act.³⁷⁸⁵ The Division Bench of the Madras High Court hearing the appeal lifted the ban until such time as the petition was finally decided on merits.³⁷⁸⁶

In their submissions to the courts, the online pharmacies contended that their business model only sought to facilitate sale and purchase of medicines through their websites. They further stated that they only provide technology platforms, which merely connect consumers to third-party licenced pharmacies. They also stated that their system is designed in a manner that a request for prescription drugs would be rejected unless a valid prescription is uploaded by the customer.³⁷⁸⁷

These cases are still pending final decision in High Courts and the Indian government has still to publish the final rules. It may be noted however, that the draft 2018 Rules do not distinguish between inventory-based model and purely marketplace models of online pharmacy. The rules for the two are likely to be different, since the former directly sells drugs to consumers, while the latter only acts as an intermediary. Be that as it may, the online platforms for sale of drugs are operational in India, which suggests that they might have registered themselves as pharmacy. PharmEasy, MedLife, Netmeds, MedPlusMart, Practo etc. are among the many online pharmacy aggregators that are operating in India. These online pharmacies, however, together have only 1% of the total pharmaceutical sales, and brick and mortar pharmacies are responsible for 99% of pharma sales India³⁷⁸⁸.

14.3.1.7. Draft Digital Information Security in Healthcare Act 2017

In March 2018, Ministry of Health and Family Welfare (MoHFW), India circulated a draft Digital Information Security in Healthcare Act (DISH Bill or the draft Bill) for public com-

3783 http://delhihighcourt.nic.in/dhcqrydisp_o.asp?pn=299654&yr=2018

3784 W.P.No.28716 of 2018; <http://164.100.79.153/judis/chennai/index.php/casestatus/viewpdf/430085>

3785 There are two types of online pharmacies, one acting as aggregators who connect registered pharmacists and the consumer and the others which have their own registered pharmacists, medicine stocks and sales licenses under existing regulations. <https://inc42.com/buzz/madras-hc-stays-ban-on-online-sale-of-medicines-epharmacies-welcome-move/>

3786 <https://inc42.com/buzz/madras-hc-stays-ban-on-online-sale-of-medicines-epharmacies-welcome-move/>
http://164.100.79.154/chennai-do/index.php/casestatus/viewpdf/cmp_23341_2018_xxx_0_0_02012019_03.pdf

3787 <https://www.thehindu.com/news/cities/Delhi/two-high-courts-two-different-views-on-online-drugs-sale/article26045505.ece>

3788 <https://www.researchandmarkets.com/reports/4537360/india-e-pharmacy-market-opportunity-outlook-2024>

ments.³⁷⁸⁹ After inviting comments, the draft Bill was put on hold while the government awaited the report of the Justice BN Srikrishna Committee, mandated to propose a draft Bill on protection of personal data³⁷⁹⁰ (the draft Personal Data Protection Bill proposed by the Committee is still under consideration by the government). DISH Bill is believed to establish a regulatory regime for the creation of digital health records and their sharing between different hospitals and clinics.

Salient features of DISH Bill are as follows:

- The draft Bill aims *inter alia* to standardize and regulate the processes relating to collection, storing, transmission and use of digital health data; and to ensure reliability, data privacy, confidentiality and security of digital health data.
- Digital Health Data, according to the draft Bill, means an electronic record of health-related information about an individual and include the following information:³⁷⁹¹
 - concerning the physical or mental health,
 - concerning any health service provided,
 - concerning the donation any body part,
 - derived from the testing or examination of a body part or bodily substance,
 - collected in the course of providing health services, or
 - relating to details of the clinical establishment accessed by the individual
- DISH Bill establishes ownership to an individual over his/her digital health data and any clinical establishment etc. will hold such data in trust for the owner.³⁷⁹² Any other entity in custody of any digital health data shall be mere custodian of such data and will be duty bound to protect the privacy, confidentiality and security of such data. The ownership rights over their digital health data includes:³⁷⁹³
 - The right to privacy, confidentiality and security;
 - To refuse consent for the generation and collection (certain exceptions applies);
 - To give, refuse or withdraw consent for storage and transmission and to refuse consent to access and disclosure (certain exceptions applies);
 - To require explicit permission for each instances of transmission or use of digital health data in 'identifiable' terms;
 - To prevent any transmission or disclosure of 'sensitive health related information';³⁷⁹⁴

3789 https://mohfw.gov.in/sites/default/files/R_4179_1521627488625_0.pdf

3790 <https://economictimes.indiatimes.com/tech/internet/health-ministry-may-await-disha-from-bn-srikrishna-report/articleshow/65098136.cms>

3791 Section 3(1)(e) of DISH Bill.

3792 Section 3(1)(j) and Section 31 of draft DISH Bill.

3793 Section 28 of draft DISH Bill; also see: https://www.medianama.com/2018/03/223-disha-electronic-health-records/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:+medianama+%28Medianama:+Digital+Media+In+India%29.

3794 According to Section 3(1) (o) of draft DISH Bill 'Sensitive health-related information' means information, that if lost, compromised, or disclosed, could result in substantial harm, embarrassment, inconvenience, violence, discrimination or unfairness to an individual, including but not limited to, one's physical or mental health condition, sexual orientation, use of narcotic or psychotropic substances, consumption of alcohol, sexual practices, Human Immunodeficiency Virus

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- To ensure whether data collected are specific, relevant and not excessive;
 - To know who have access to their digital health data, and to whom the same is being transmitted or disclosed, and to be notified each time such data is being accessed;
 - To rectify any inaccurate or incomplete digital health data;
 - To ensure that in health emergency their digital health data be shared with their family members;
 - The right not to be refused health service, if they refuse to consent to generation, collection, storage, transmission and disclosure of their health data;
 - To right to seek compensation in cases of breach.
- The DISH Bill also provides of purpose-limitation on collection, storage, transmission and use of digital health data,³⁷⁹⁵ which can be done only for the following purposes:
 - To advance the delivery of patient centred medical care;
 - To provide appropriate information to help guide medical decisions at the time and place of treatment;
 - To improve the coordination of care and information among hospitals, laboratories, medical professionals, and other entities through an effective infrastructure for the secure and authorized exchange of digital health data;
 - To improve public health activities and facilitate the early identification and rapid response to public health threats and emergencies, including bioterror events and infectious disease outbreaks (only de-identified or anonymized data);
 - To facilitate health and clinical research and health care quality (only de-identified or anonymized data);
 - To promote early detection, prevention, and management of chronic diseases (only de-identified or anonymized data);
 - To carry out public health research, review and analysis, and policy formulation (only de-identified or anonymized data);
 - To undertake academic research and other related purposes (only de-identified or anonymized data);
 - According to draft DISH Bill, digital health data can be collected by consent from the owner and after informing the owner³⁷⁹⁶:
 - about his/her rights under the Act, including refusal to give consent;
 - the purpose of collection of such data;
 - the identity of the recipients to whom the health data may be transmitted or disclosed, and
 - the identity of the recipients who may have access to such digital health data on a need to know basis.

status, Sexually Transmitted Infections treatment, and abortion.

3795 Section 29 of draft DISH Bill.

3796 Section 30 of draft DISH Bill.

- Further, draft DISH Bill strictly prohibits access, use or disclosure of digital health data (whether in identifiable or anonymized form) by any other entity for a commercial purpose. It further prohibits the use of such data by employers, insurance companies, human resource consultants and pharmaceutical companies under any circumstances. Insurance companies can access digital health data only for the purpose of processing a claim of the owner.³⁷⁹⁷

14.3.1.8. The National Digital Communication Policy

In September 2018, the Government of India adopted the National Digital Communications Policy, 2018³⁷⁹⁸ ('NDC Policy' or 'the Policy'). This Policy replaces the National Telecom Policy of 2012 and, as its title suggests takes into account 'digital' communication as against mere 'tele' communication of the 2012 policy.

Among other things, the Policy seeks to promote and protect fair competition across the communications and digital economy sector. Its stated 'vision' is "to fulfil the information and communication needs of citizens and enterprises through the establishment of a ubiquitous, resilient, secure, accessible and affordable Digital Communications Infrastructure and Services and in the process, to support India's transition to a digitally empowered economy and society".³⁷⁹⁹ The core idea behind the policy is 'universal coverage' rather than revenue maximization.

The NDC Policy aims to accomplish the following strategic objectives by 2022:

- Provisioning of broadband for all;
- Creating 4 million additional jobs in the digital communications sector;
- Enhancing the contribution of the digital communications sector to 8% of India's GDP from 6% in 2017;
- Propelling India to the top 50 nations in the ICT Development Index of International Telecom Union (ITU) from 134 in 2017;
- Enhancing India's contribution to Global Value Chains;
- Ensuring 'digital sovereignty'.

The Policy envisages the following three 'missions' in order to achieve the above-said objectives by 2022:

- Connect India (creating robust digital communication infrastructure)—to promote Broadband for All as a tool for socio-economic development, while ensuring service quality and environmental sustainability.
- Propel India (enabling next generation technologies and services through investments, innovation and IPR generation)—to harness the power of emerging digital technologies, including 5G, AI, IoT, Cloud and Big Data to enable provision of future ready products and services; and to catalyse the Industry 4.0 by promoting investments, innovation and IPR.

³⁷⁹⁷ p 15, Privacy in Data Economy, PWC; <https://www.pwc.in/assets/pdfs/publications/2018/privacy-in-the-data-economy.pdf>

³⁷⁹⁸ <http://dot.gov.in/sites/default/files/EnglishPolicy-NDCP.pdf>

³⁷⁹⁹ Page 5, NDC Policy.

- Secure India (ensuring sovereignty, safety and security of digital communications—to secure the interests of citizens and safeguard the digital sovereignty of India with a focus on ensuring individual autonomy and choice, data ownership, privacy and security; while recognizing data as a crucial economic resource).

For enabling next generation technology, the NDC Policy suggests fostering an IPRs regime which promotes innovation and recommends a review of copyright, patents and trademarks regimes. It also asks for providing financial incentives for the development of Standard Essential Patents (SEPs) in the field of digital communications technologies as well as promoting Indian IPR through international collaborations and active participation in standard development processes.³⁸⁰⁰

The Policy also endeavours to maximise India's contribution to global value chains, by focussing on domestic production, increasing exports and reducing the import burden. This is sought to be achieved through the following measures/tools:³⁸⁰¹

- rationalising taxes, levies and differential duties to incentivize local manufacturing of equipment, networks and devices;
- introducing 'Phased Manufacturing Program' for identified product segments in Digital Communication Technologies;
- attracting and incentivizing global original equipment manufacturers (OEMs) and generic component players to setup manufacturing base in India;
- ensuring the availability of essential background IPR in Fair, Reasonable and Non-Discriminatory (FRAND) terms required for promoting local manufacturing;
- promoting design led manufacturing in India by leveraging indigenous software/ R&D capabilities;
- attracting global talent from Indian diaspora to create best in class enterprises.

The NDC Policy also flags acceleration of Industry 4.0 and suggests creation of a roadmap by 2020 and establishment of a multi-stakeholder led collaborative mechanism for coordinating transition to Industry 4.0.³⁸⁰² The Policy also calls for establishing a strong, flexible and robust data protection regime and harmonising communication law and policy with the evolving legal framework and jurisprudence relating to privacy and data protection in India. Further, in order to provide autonomy and choice for every citizen and enterprise, the Policy recognises the need to uphold the core principles of net neutrality. For this, it flags the incorporation of principles of non-discriminatory treatment of content and introduction of appropriate disclosure and transparency requirements.³⁸⁰³

Furthermore, the Policy recommends establishment of a Central Equipment Identity Registry for addressing security, theft and other concerns including reprogramming of identity of

3800 Page 15, NDC Policy.

3801 Page 16, NDC Policy.

3802 Page17, NDC Policy.

3803 Page 18, NDC Policy.

mobile handsets. It also calls for facilitation of lawful interception of all digital communications for national security.

In addition to the NDC Policy, the Government of India also has a National Policy on Software Products, 2019,³⁸⁰⁴ which envisions “to develop India as a Software Product Nation and a global leader in conception, design, development and production of intellectual capital driven Software Products, thus, accelerating growth of entire spectrum of IT Industry of the country”.

Further, a new consumer protection law – the Consumer Protection Act, 2019³⁸⁰⁵ – has been enacted in August 2019, which expressly defines ‘e-commerce’. According to the Act, “e-commerce” means buying or selling of goods or services including digital products over digital or electronic network³⁸⁰⁶ and “electronic service provider” means a person who provides technologies or processes to enable a product seller to engage in advertising or selling goods or services to a consumer and includes any online market place or online auction sites.³⁸⁰⁷

Furthermore, under this Act, government has published, for public comments, the e-Commerce Guidelines for Consumer Protection 2019.³⁸⁰⁸ These Guidelines would act as guiding principles for e-commerce business for preventing fraud, unfair trade practices and protecting the legitimate rights and interests of consumers and will apply to B2C e-commerce of goods and services. The Guidelines also contain liabilities of e-commerce platforms and sellers on such platforms. The Guidelines will be considered for adoption after taking into account the public comments.

14.3.2. Is there a digital strategy agenda in your jurisdiction? How this (if at all) relates to competition law and policy and what is the level of involvement of the competition authority (or authorities)?

Although there is no concrete digital strategy agenda in India, the overview of regulatory and policy framework, reveals certain elements of an overall digital strategy. Data is now being seen not only from ‘protection of privacy’ angle, but also as having immense economic value in digital economy. The thrust seems not only to deepen digital economy in India, but also to promote Indian players and platforms in the fast-growing digital economy. Key elements of digital strategy may be summarised as follows:

- Digital sovereignty – emphasis on digital sovereignty can be gathered from the NDC Policy and the draft NEC Policy. “If India’s economic, social and political interests in the emerging data economy are to be effectively secured, its ‘digital sovereignty’ encompassing the data privacy, choice and security of its

3804 https://meity.gov.in/writereaddata/files/national_policy_on_software_products-2019.pdf

3805 <https://consumeraffairs.nic.in/sites/default/files/CP%20Act%202019.pdf>

3806 Section 2(16), the Consumer Protection Act, 2019

3807 Section 2(17), the Consumer Protection Act, 2019

3808 <https://consumeraffairs.nic.in/sites/default/files/file-uploads/latestnews/Guidelines%20on%20e-Commerce.pdf>

citizens must be a prime consideration while participating in the global digital economy".³⁸⁰⁹

- Data localisation – make this localization policy work in establishment of data centres in India and subsequently help enhance access to consumers' data by Indian players (start-ups) for their scaling up to become globally competitive. India, being a huge market, generates sufficient consumer data to make players globally competitive. That is why there is a policy trend towards restrictions on cross-border flow of data.
- End monopoly over data – it seems India is moving towards policy in order to ensure that no entity enjoys monopoly over data. After data have been anonymized (to protect privacy of specific individuals), the same can be shared with other entities in the digital economy. Recently NITI Ayog, the government policy think tank, has made a proposal on these lines for fintech sector, which is likely to extend to other sectors like e-commerce, health, education etc.³⁸¹⁰
- Distinguishing between Indian players and foreign players – the policy direction in India suggests that in order to favour Indian players, regulations can differ for foreign and local players, particularly in sectors which do not allow 100% FDI is not allowed. There is a. One case is that of multi-brand retail sector in which there is regulatory discrimination between foreign e-commerce platforms and Indian platforms as far as B2C transactions are concerned: while inventory-model for foreign platforms is not allowed, there are no such restriction vis-à-vis domestic platforms.
- Monetize India's data – there are also talks about charging foreign players for access to India's data (on the lines of TRIPS-CBD Access-Benefit arrangements) or put some terms and conditions that could benefit Indian economy.
- Net neutrality – while India adheres to net neutrality principles, it does not seem to have taken cognizance of 'platform-neutrality' thus far. At present any kind of platform-to-business (P2B) regulation does not seem to be on the radar of policy makers. However, the judgement of the appellate tribunal on a competition case (All India Online Vendors Association vs. Flipkart, decided by the Competition Commission of India³⁸¹¹) is likely to trigger debates with respect to P2B regulations. Some buzz has also been created recently after the Commission had organised a workshop³⁸¹² on August 30, 2019, wherein platforms and their online business partners logged horn and questioned 'platform neutrality'³⁸¹³.

3809 Para 9, Preamble; page 2, NDC Policy; <http://dot.gov.in/sites/default/files/EnglishPolicy-NDP.pdf>

3810 NITI Ayog bats for ending data monopoly; Economic Times, May 17, 2019 <https://economictimes.indiatimes.com/news/economy/policy/niti-aayog-bats-for-ending-data-monopoly/articleshow/69364496.cms>

3811 Case 20 of 2018

3812 Titled: "E-commerce: Changing Competition Landscape in India"

3813 For instance, see this story: <https://the-ken.com/story/digital-platforms-perfect-storm/>

- Acceptance of regulatory sand-box – behaviour of regulators or competition authority is largely positive towards disrupting technologies. The approach is to allow it to take place whilst carefully monitoring the dynamics and intervening appropriately. However, it is important to bear in mind that there may be instances where interventions may be vitiated by the incumbent-led interest groups, for example in ride-sharing sector some states seem to be under influence of local taxi lobby. At least on one occasion in e-pharmacy sector judiciary has also been found to pass injunction order without clear understanding of the dynamics.
- Defensive approach as far as cross-border digital trade is concerned – India is among few naysayers to any WTO rules on e-commerce, and hence is reluctant to join the ongoing WTO plurilateral negotiations on cross-border e-commerce, saying it will reduce its policy space to address its socio-economic concerns.
- Use of ‘access to Indian digital market’ as *quid pro quo* for better bargaining in international trade and investment negotiations, also seems to be a tacit strategy of India.

On competition front, while there is no national competition policy in India (though there is one in draft form³⁸¹⁴), there is a competition law in form of the Competition Act, 2002, which does provide for advocacy function to be carried out by the Commission. Under this advocacy function, the emerging digital strategy agenda of India can be seen from competition lens and recommendations can be made whether elements of such strategy are pro-competition or are market distortive and hence against the principles of competition policy. Such recommendations can include alternatives that could be least restrictive in achieving the desired policy/regulatory objectives.

More so, the Competition Act, thus far, has been enforced without really distinguishing between digital and non-digital markets. However, off late, cognisance is being taken to address nuances of the emerging digital economy.

For instance, in Bayer-Monsanto deal, due to the Commission’s insistence, Bayer had to undertake for grant of access to Indian agro-climatic data (soil, climate, environmental, weather, moisture data, growing degree day and temperature data) used for their Digital Farming Product(s) or Digital Farming Platform(s), on fair, reasonable, and non-discriminatory terms and through non-exclusive, non-transferrable, non-sublicensable, royalty bearing licenses Bayer also had to undertake to connect to its digital platforms selling agriculture inputs to agricultural producers in India to potential Licensees.³⁸¹⁵ Bayer also had to undertake to grant access to Indian agro-climatic data collected by its digital platform, to government institutions free of charge.³⁸¹⁶

3814 http://www.mca.gov.in/Ministry/pdf/Draft_National_Competition_Policy.pdf

3815 Para 200, CCI order dated 14.06.2018 on Combination Registration No. C-2017/08/523; https://www.cci.gov.in/sites/default/files/Notice_order_document/Order_14.06.2018.pdf

3816 Para 201, *ibid*

By and large the Commission has largely refrained from adopting an overtly heavy-handed approach towards digital markets.³⁸¹⁷ A Competition Law Review Committee was set up in October 2018 to review the Competition Act and Rules/Regulations framed under the Act and suggest changes in law, if at all, required to cater the changing economic landscape. Public comments were also sought by the Committee³⁸¹⁸. The Committee submitted its Report³⁸¹⁹ to the government in August 2019, which includes a devoted section (Chapter 8) on competition concerns in technology and new age markets. The Report deliberates on the importance of ‘control over data’ and ‘network effects’ in competition analyses. Recommending very few changes in the Act (say for example taking ‘deal’ values in calculating threshold for merger notifications), the Committee largely found the provisions of the present law sufficient to deal with the competition nuances of the digital markets.

As far as the level of involvement of the competition authority is concerned, the same can be said not to be up to mark. Only one market enquiry on e-commerce³⁸²⁰ has been conducted by the Commission with respect to digital markets till date. The level of involvement of the Commission has been more or less satisfactory in dealing with cases in digital that came to it (competition cases with respect to digital markets are discussed below).

However, another relevant regulatory agency – Telecom Regulatory Authority of India (TRAI) – has been quite active in publishing white papers etc., which are being taken as part of the emerging national digital strategy of India.

14.3.3. What is protected by property rights (rights to exclude, transfer and monetise)?

14.3.3.1. Intellectual property rights (IPRs) in the digital economy

- (a) *Software patents*: Like most patent laws, under the Indian Patents Act patents can be granted to inventions (whether products or processes) in all fields of technology if they are ‘novel’, involves an ‘inventive step’³⁸²¹ and is ‘capable of industrial application’³⁸²². However, the Act under Section 3 provides a list of exclusions which are not inventions within the meaning of the Act. Such list contains “a mathematical or

3817 CCI Sets Foot Into the Digital Arena, But Still Has a Long Way To Go, The Wire, 18 April, 2018; <https://thewire.in/tech/cci-sets-foot-into-the-digital-arena-but-still-has-a-long-way-to-go>

3818 CUTS submission to the Committee can be found here: https://cuts-ccier.org/pdf/CUTS-CIRC_Submission_to_Competition_Law_Review_Committee.pdf

3819 http://www.mca.gov.in/Ministry/pdf/ReportCLRC_14082019.pdf

3820 Interim observations of this market inquiry is here: https://www.cci.gov.in/sites/default/files/whats_newdocument/Interimobservations_30August2019.pdf

3821 As defined under Section 2(1)(ac) of the Patents Act, 1970

3822 As defined under Section 2(1)(ja) of the Patents Act, 1970

business method or a computer programme *per se* or algorithms”³⁸²³, thus rendering them not patentable.

In order to facilitate examination of increasing number of patent applications related with digital technology, Guidelines for Examination of Computer Related Inventions (CRIs)³⁸²⁴ was issued in 2016. According to the Guidelines, “focus should be on the underlying substance of the invention and not on the particular form in which it is claimed... If the substance of claims, taken as whole, does not fall in any of the excluded categories, the patent should not be denied”.

While the meanings of ‘mathematical method’ and ‘algorithm’ are in general quite simple and can easily be excluded, the interpretations of ‘business method’ and ‘computer programme *per se*’ could involve certain complexity.

According to the Guidelines, even if a claim involves “business methods” but if it specifies an apparatus and/or a technical process for carrying out the invention even partly, the claims shall be examined as a whole. Similarly, the legislative intent behind suffixing ‘per se’ to computer programme is that “sometimes the computer programme may include certain other things, ancillary thereto or developed thereon”³⁸²⁵ and hence patent could be granted if they are inventions.

The clarification by the Guidelines has led to granting of software patents, mainly those related with the ‘business methods’ of software and internet companies like Facebook, Apple and Google.³⁸²⁶

For instance, two patents were granted to Facebook and one each to Apple and Google in 2017, all related with business methods. First on a method “for generating dynamic relationship-based content, personalised for members of the web-based social network”³⁸²⁷ where Facebook successfully argued that the invention “implements a technical process and has a technical effect”³⁸²⁸. Second patent was granted on a method to share its user-profile data with third party applications on Facebook,³⁸²⁹ where in it stated that its invention was not merely a computer program as the said invention “includes hardware limitation and provides technical improvements and benefits like checking privacy setting associated with the user profile”³⁸³⁰.

3823 Section 3(k) of the Patents Act, 1970

3824 http://www.ipindia.nic.in/writereaddata/Portal/Images/pdf/Revised_Guidelines_for_Examination_of_Computer-related_Inventions_CRI_.pdf

3825 Report of the Joint Committee presented to the Rajya Sabha on 19th December, 2001 and laid on the table of Lok Sabha on 19th December 2001

3826 <https://www.firstpost.com/tech/news-analysis/software-patents-prohibited-under-indian-law-but-granted-in-spirit-3702725.html>

3827 <http://ipindiaservices.gov.in/decision/830-CHENP-2009-29876/830chenp2009-GRANT.pdf>

3828 <https://www.firstpost.com/tech/news-analysis/software-patents-prohibited-under-indian-law-but-granted-in-spirit-3702725.html>

3829 <http://ipindiaservices.gov.in/decision/6799-CHENP-2009-35703/6799-chenp-2009.pdf>

3830 <https://www.firstpost.com/tech/news-analysis/software-patents-prohibited-under-indian-law-but-granted-in-spirit-3702725.html>

Apple obtained a patent on a 'method for browsing data items with respect to a display screen associated with a computing device and an electronic device'³⁸³¹ arguing that its invention brings about an "improved technical effect"³⁸³². Similarly, Google obtained a patent on an invention titled 'phrase identification in an information retrieval system' arguing successfully that the invention is neither a mathematical algorithm nor a computer programme *per se*, but provides a technical solution to a technical problem of how to automatically identify phrases in a document collection.³⁸³³

In sum, there are windows available for patent protection for Computer-related Inventions, otherwise computer software are largely protected under Copyright Act in India.

- (b) *Copyright Protection*: The Section 2(o) of the Copyright Act, 1957³⁸³⁴ defines "literary work", which includes computer programmes, tables and compilations including computer databases. As per Section 13 of the Act, original literary works qualifies for copyright protection. However, these literary works must be recorded into some tangible medium (form of expression of an idea) to get copyright protection³⁸³⁵.

Further, the copyright protection is available to computer program, in human-readable (source code) and machine-executable form (object code), as well as related manuals. That means unauthorised copying of source code and object code will be treated as piracy under the Act. However, copyright is not available for the methods and algorithms within a programme³⁸³⁶.

14.3.3.2. Are there any other property rights over data? Are data/algorithms subject to sui generis property rights?

As of now there is no property right over data or algorithms. However, the draft NEC Policy talks about sovereign rights over Indian's data. Similarly, the draft Personal Data Protection Bill does establish controls and rights of data principals over their data, but it is silent on 'ownership' or 'property rights' as such.

14.3.3.3. Rights of control and portability on personal data?

The draft PDP Bill, which will be a general regulatory regime for data protection if it

[it-3702725.html](#)

3831 <http://ipindiaservices.gov.in/decision/461-KOLNP-2009-36006/461KOLNP2009.PDF>

3832 <https://www.firstpost.com/tech/news-analysis/software-patents-prohibited-under-indian-law-but-granted-in-spir-it-3702725.html>

3833 <https://www.financialexpress.com/india-news/google-gets-big-boost-in-india-awarded-patent-for-system-to-spot-good-and-bad-phrases/666474/>

3834 <http://copyright.gov.in/documents/copyrightrules1957.pdf>

3835 <http://www.legalservicesindia.com/article/855/Indian-Copyright-Software.html>

3836 <http://www.mondaq.com/india/x/802408/Copyright/Software+Protection+Under+Copyright+Law>

becomes law, talks about rights of data principal over their data, and includes right to portability (discussed above). According to the draft Bill, users have right to receive the following personal data in a structured, commonly used and machine-readable format:

- Personal data provided by data principal
- Data that has been generated in the course of provision of services or use of goods by the data fiduciary
- Data that forms part of any profile on the data principal or which the data fiduciary has otherwise obtained

14.3.4. Specific regulatory regimes

An overview of regulatory and policy framework relevant for digital economy has been provided in detail above.

14.3.4.1. Electronic communications

(a) Interoperability

There is no general regulation on interoperability, but the draft PDPB does have right to data portability and the use of phrase “structured, commonly used and machine-readable format” does takes it closer to interoperability. Apart from the telecom sector, in fintech sector, however, there are guidelines mandating interoperability of Prepaid Payment Instruments (PPIs)³⁸³⁷, which has bearing in the digital economy.

The PPIs Operational Guidelines for Interoperability, 2018 provides for: (i) interoperability of PPIs issued in the form of wallets through Unified Payments Interface (UPI), (ii) interoperability between wallets and bank accounts through UPI, and (iii) interoperability for PPIs issued in the form of cards through card networks.

There is an interoperability regulation on Set Top Box (for DTH and Cable operators) in the pipeline. TRAI had issued a consultation paper titled “Consultation Note on Solution Architecture for Technical Interoperable Set Top Box”³⁸³⁸ in Aug 2017.

(b) Network neutrality regulation and access regulation

According to the Department of Telecommunication (DoT), India, “government is committed to the fundamental principles and concepts of Net Neutrality i.e. keep the Internet accessible and available to all without discrimination. Internet Access Services, therefore, need to be governed by a principle that restricts any form of discrimination, restriction or interference in the treatment of content, including practices like blocking, degrading, slowing down or granting preferential speeds or treatment to any content”³⁸³⁹. In order to enforce this, the

3837 Prepaid Payment Instruments (PPIs) – Operational Guidelines for Interoperability, 2018; https://www.rbi.org.in/scripts/FS_Notification.aspx?id=11393&fn=9&Mode=0

3838 <https://main.trai.gov.in/broadcasting/stb-interoperability>

3839 <http://dot.gov.in/net-neutrality>

DoT came out with a Policy Directive in July 2018 depicting “Regulatory Framework on ‘Net Neutrality’”³⁸⁴⁰.

Earlier in February, 2016 the Telecom Regulatory Authority of India (TRAI) had notified “Prohibition of Discriminatory Tariffs for Data Services Regulation, 2016”, under Telecom Regulatory Authority of India Act, 1997. According to this Regulation, no service provider can offer or charge discriminatory tariffs for data services on the basis of content.³⁸⁴¹ It further bars service providers from entering into any arrangement, agreement or contract with any person that has the effect of “discriminatory tariffs for data services”³⁸⁴². There are penal provisions for the violation of this regulation.

(c) Price regulation

Though the Telecom Regulatory Authority of India (Amendment) Act, 2000 empowers TRAI to notify rates for telecommunication services, it has not used this power. Instead TRAI provides a regulatory oversight so that the tariff framework follows the broad regulatory principles of non-discrimination, transparency, non-predatory, non-ambiguous, not anti-competitive and not misleading.³⁸⁴³

14.3.4.2. Access to Data

(a) General regulatory framework

As discussed above, the draft Personal Data Protection Bill, 2018 has been proposed as a general regulatory framework to regulate access to data. At present, access to data is governed by the Information Technology Act, 2000, which has also been discussed above in detail.

- Interoperability

Instead of interoperability, the proposed draft PDPB empowers data principals with right to data portability in a “structured, commonly used and machine-readable format”. There seems to be no specific regulation (existing or proposed) as far as data interoperability is concerned.

- Non-discrimination

While the existing rules and regulations does not seem to have any discriminatory provisions with respect to access to data, the emerging policy and regulatory framework (see for example draft National e-Commerce Policy, 2018) does seem to discriminate between Indian and foreign persons with respect to access to data.

3840 http://dot.gov.in/sites/default/files/DoT%20Letter%20on%20Net%20Neutrality%20Regulatory%20Framework%20dated%2031%2007%202018_0.pdf?download=1

3841 Section 3, Prohibition of Discriminatory Tariffs for Data Services Regulation, 2016; https://main.trai.gov.in/sites/default/files/Regulation_Data_Service.pdf

3842 “discriminatory tariffs for data services” means charging of different tariffs by a service provider for data services based on the content accessed, transmitted or received by the consumer; Section 2(g), Prohibition of Discriminatory Tariffs for Data Services Regulation, 2016

3843 Page 5, *ibid*

- Price/rates regulation

There is no price or rate regulation, but net neutrality and competition is being ensured in data services by TRAI.

- Data portability

As discussed above.

(b) Sector-specific regulatory framework

A comprehensive overview of regulatory framework has been given in details above. In sum, at present there is one binding sector sector-specific regulation in form of the RBI Notification on Storage of Payment System Data, 2018 (discussed above), which mandates data localisation of entire data relating to payment systems – to be stored ‘only’ in India.

Few other sector specific regulatory framework related to access to data is in pipeline, such as Draft Digital Information Security in Healthcare Act, 2017 and draft e-Pharmacy Rules, 2018 (both has been discussed above).

- Algorithms/smart data

The IT Act, 2000 is the only binding general law at present that governs data from any source. The proposed draft PDPB is the upcoming general regulatory framework. On algorithms *per se*, India does not seem to have any general regulatory framework.

There, however, may be very few sector-specific regulatory frameworks on algorithm, for instance with respect to algo-trading, the Electronic Trading Platforms (Reserve Bank) Directions, 2018³⁸⁴⁴ was issued by the Reserve Bank of India. According to these Directions, any entity seeking authorisation as an Electronic Trading Platform (ETP) operator shall have to, *inter alia*, “obtain and maintain robust technology infrastructure with a high degree of reliability, availability, scalability and security in respect of its systems, data and network, appropriate to support its operations and manage the associated risks” (para 5(1)(c)(i) of the Directions).

For algorithmic systems, an ETP that provides algo trading will have to put in place a framework for testing and on-boarding of algo systems. And also ensure that such facilities are offered in a transparent and non-discriminatory manner as well as ensure that their systems and controls are adequate and effective for monitoring and managing risks arising from algo systems (para 7(1)(b)(iii) of the Directions).

(c) Institutional architecture

- Is there a digital platforms regulator?

No at present there is no digital platforms regulator, however, the Data Protection Authority under proposed draft PDPB will be an overarching regulator vis-à-vis personal data.

- Which sector-specific regulators are involved?

3844 <https://rbi.org.in/scripts/NotificationUser.aspx?Mode=0&Id=11385>

At present there is only one sector-specific regulator vis-à-vis payments, which include any digital platform in fintech sector. The regulator is Reserve Bank of India, which is relatively much independent from the Central Government. It has a Board of Directors, where government nominees are members, but it does not interfere in regulatory matters.

The TRAI, which predominantly is a telecom regulator, also has some powers to regulate certain aspects of digital communication. It is a statutory body, but government may intervene as per the TRAI Act. Though on regulatory matters, such government interferences are rare.

However, some more sector-specific regulations might come in near future, as has been discussed in regulatory and policy overview above.

(d) What is the role of the competition authority (authorities)?

The Competition Commission of India (CCI) is India's antitrust regulator. It was originally envisaged as a quasi-judicial body, which would conduct judicial proceedings generally based on complaints. Following a legal challenge, the CCI was recast from a primarily judicial body into a full-fledged regulator.

Its adjudicatory powers were modified from resolving adversarial disputes between business rivals to preventing practices having an adverse impact on competition. To supplement its role as an expert regulator, the CCI has proactive advisory and advocacy responsibilities.

The CCI has four statutory duties, viz:

- To eliminate practices having an adverse effect on competition in India;
- To promote and sustain competition in markets;
- To protect the interests of consumers; and
- To ensure freedom of trade carried on by other participants in markets in India.

The CCI may, on its own motion or on receipt of information from any person or on a reference made to it by a Government or a statutory authority, initiate an inquiry into an alleged contravention of the Competition Act, If it believes a *prima facie* case exists, the CCI must direct its Director General to investigate the matter. On the basis of the DG's investigation, the CCI may inquire into the matter and pass appropriate orders in the case of a contravention of the Act.

The CCI also regulates combinations. The Act prohibits any combination above a certain asset or turnover threshold, or if it is likely to cause an appreciable adverse effect on competition (AAEC) in the relevant market in India. The CCI has powers to approve a combination, modify terms of a combination, or direct that a combination shall not take effect.

The Commission is also empowered under the Act to perform advisory and advocacy functions. It may advise governments and statutory authorities on matters of competition, promote competition advocacy, create awareness and impart training about competition.

(e) What is the role of courts (generalist or specialised) in enforcing competition law and regulatory (structure, price and access regulation)?

Any appeal on the Commission's order lies at the National Company Law Appellate Tribunal. Generally, sector-specific regulations also have their own appellate bodies. Role of higher courts, in general, lies in deciding any points of law or points of constitutional law, apart from entertaining injunction suits.

(f) Interaction between competition law and regulation in the digital economy

- Competition authorities and general or sector-specific access and pricing regulators

The preamble of the Indian Competition Act empowers the Commission established under the act *to prevent practices having adverse effect on competition, to promote and sustain competition in markets, to protect the interests of consumers and to ensure freedom of trade carried on by other participants in markets, in India.*³⁸⁴⁵ In a similar vein, Section 60 of the Act confers an overriding effect on the provisions of the Act in times of inconsistency with other regulations. Therefore, the intention of the Act seems to be inclined towards giving the Commission authority to rule in the event of regulatory overlaps and conflicts.

As per Section 21 of the Act, a statutory body can make a reference to the CCI in the event of a decision that conflicts with the provisions of the Act. Initially, such reference could only be made at the request of a party. However, pursuant to the 2007 Amendments to the Act, a sectoral regulator can refer a matter to the CCI *suo motu* as well.

Mirroring the spirit of this Section, under Section 21A the Commission can refer a matter to the statutory authority for its opinion on the same. In both cases of reference, the agency has to render its opinion to the referring authority within 60 days of receipt of reference which is to be considered by the statutory or the competition authority. However, the opinions received from such consultations under Section 21 and 21 A are non-binding. Further, both the sections offer a 'may' provision thus making it optional for the agencies to consult each other.

While these sections seek to enhance mutual cooperation between competition authority and sectoral regulators, the non-binding and non-mandatory nature of consultations refutes the intended objectives. Moreover, owing to multiplicity of regulators in the country coupled with lack of clarity of their roles and functions, turf wars between the competition authority and sector regulators continue to persist.

Recently, in December 2018 the Supreme Court of India was faced with yet another issue of jurisdiction between the Telecom Regulatory Authority of India (TRAI) and the Competition Commission of India on who is best suited to decide on anti-competitive behaviour in the telecom sector. The Court observed, *"TRAI being a specialised sectoral regulator and also armed with sufficient power to ensure fair, non-discriminatory and competitive market in the telecom sector is better suited to decide the aforesaid issues"*.³⁸⁴⁶

3845 https://www.cci.gov.in/sites/default/files/ccj_pdf/competitionact2012.pdf

3846 https://www.sci.gov.in/supremecourt/2017/40072/40072_2017_Judgement_05-Dec-2018.pdf

The Supreme Court opined that the functions of TRAI and CCI are distinct from each other. The CCI is entrusted with duties, powers and functions to deal with anticompetitive practices that have an adverse effect on market competition to protect the interest of consumers and ensure freedom of trade. TRAI, on the other hand, is entrusted with regulation of telecom services for orderly and healthy growth of telecommunication infrastructure apart from protection of consumer interest. Since the case at hand pertains to the telecom market, which is specifically regulated by the TRAI Act, the court held that 'balance' will be maintained by permitting TRAI in the first instance to decide the 'jurisdictional facts'.

However, the Court did not altogether oust the jurisdiction of CCI and made its investigation subject to the findings of TRAI by stating as follows:

"Once that exercise is done and there are findings returned by the TRAI which lead to the prima facie conclusion that IDOs have indulged in anti-competitive practices, the CCI can be activated to investigate the matter going by the criteria laid down in the relevant provisions of the Competition Act and take it to its logical conclusion"³⁸⁴⁷

The judgment, while illuminating on the issue of competition v. sectoral regulators generally, and in the telecom sector specifically, leaves several grey areas worth consideration:

- There is a need for clear demarcation of roles and seamless distribution of powers of the sectoral regulator as well as the market wide regulator, while preserving the *raison d'être* of both the authorities.³⁸⁴⁸
- The order of the Supreme Court sends mixed signals as on one hand it seems to be deciding a logical flow of jurisdiction in matters involving specialised regulation as well as the CCI, on the other it seems to be abridging the authority of the CCI.³⁸⁴⁹
- It rules that the sectoral regulator, being an expert body, should first determine "jurisdictional facts", after which the CCI may determine if there is a violation of the Competition Act without defining the said 'jurisdictional facts'. In the present case, the central issue was whether the dominant incumbents are "acting unilaterally or collectively", one that raised a purely antitrust question. TRAI still remains to assess the jurisdictional aspects in this case perhaps due to lack of antitrust expertise.
- Introducing a two-tiered jurisdiction where first the sectoral regulator takes some decisions, and then CCI, after which an appeal lies to the NCLAT and then the SC, will introduce tremendous delays. It is possible that the parties might not be in business by the time a case is resolved.

3847 Ibid.

3848 http://www.cuts-ccier.org/pdf/Edition-11-Analysis_of_Competition_Cases_in_India.pdf

3849 Ibid.

The Report of the Financial Sector Legislative Reforms Commission³⁸⁵⁰ contains some useful recommendations with respect to inter-regulatory agency co-ordination, which include:

- Promoting formal co-ordination mechanisms amongst regulatory agencies;
- Coordinating the conduct of systemic-risk monitoring functions;
- Facilitating the adoption of common standards and practices in rule-making and enforcement;
- Helping to resolve inter-regulatory agency disputes.

(g) Competition authorities and data protection agencies

Currently there is no specific data protection agency in India. A Data Protection Authority has been proposed to be created under the draft Personal Data Protection Bill, 2018.³⁸⁵¹ This draft Bill along with a report³⁸⁵² was presented to the Ministry of Electronics and Information Technology on July 27, 2018 by the Committee of Experts under the Chairmanship of (Retired) Justice B. N. Srikrishna. The Bill is yet to be adopted by the Union Cabinet and placed before the Parliament.

(h) Competition authorities and digital consumer protection agencies (indicate if the competition authority is also functioning as a consumer protection regulator)

In India, the competition and consumer protection rules were initially combined under the Monopoly and Restrictive Trade Practices Act 1970. However, eventually with the enactment of Consumer Protection Act in 1986 and subsequently the Competition Act in 2002 there was a clear demarcation in legislations with distinct enforcement functions. However, both the laws deal with protection of interests of consumers directly (under consumer law) and indirectly (under competition law). A new Consumer Protection Act, 2019 has been passed, for which Rules are being framed and institutional set up is being processed. The new law covers all modes of transactions including 'offline or online transactions through electronic means or by telesshopping or direct selling or multi-level marketing' thus including the consumers of e-commerce platforms within its ambit.

(i) Interaction between competition law and IP rights

- Do IP rights benefit from an exemption regime?

As per Section 3(5)(i) of the Competition Act, a prohibition on anticompetitive agreements shall not restrict the right of any person to restrain any infringement of, or to impose reasonable conditions, as may be necessary for protecting his or her Intellectual Property (IP) Rights.

In order to clarify the scope of the section, the Competition Commission of India has observed that, '...the extent of non obstante clause in section 3(5) of the Act is not absolute as is clear from the language used therein and it exempts the right holder from the rigours of competition law only to protect his rights from infringement. It further

3850 https://dea.gov.in/sites/default/files/fslrc_report_vol1_1.pdf

3851 https://meity.gov.in/writereaddata/files/Personal_Data_Protection_Bill,2018.pdf

3852 https://www.meity.gov.in/writereaddata/files/Data_Protection_Committee_Report.pdf

enables the right holder to impose reasonable conditions, as may be necessary for protecting such rights.³⁸⁵³

Further, the Commission has explicitly stated that registration of an IP right does not automatically entitle a company to seek exemption under Section 3(5)(i) of the Act.³⁸⁵⁴ In order to be eligible for exemption, it is important to ascertain if the condition imposed by the IPR holder can be termed as *imposition of reasonable conditions, as may be necessary for the protection of any of his rights*.³⁸⁵⁵ Thus, the emphasis is on the term 'necessary' and the relevant question is *whether in the absence of the restrictive condition, the IPR holder would be able to protect his IPR*.³⁸⁵⁶

- Are there any IP related competition law guidelines?

Other than the provisions of the Competition Act of 2002, there is no secondary legislation/ guidelines concerning the application of competition law to IPRs.

- Succinctly summarise the main aspects of the guidelines

N/A

- Are there any sectors exempted from competition law enforcement?

No sectors are exempted from competition law enforcement in India. However, the Competition Act excludes *any activity of the Government relating to the sovereign functions of the Government including all activities carried on by the departments of the Central Government dealing with atomic energy, currency, defence and space* from its ambit.³⁸⁵⁷

However, under Section 54 of the Act, the Central Government has the powers to exempt enterprises from application of the Act.³⁸⁵⁸ For instance, in furtherance to its powers under this section, the Government has through notification exempt the following sectors from application of provisions of the Act:

- In June 2017, every person or enterprise who is a party to a combination as referred to in section 5 of the said Act was exempted from giving notice within thirty days mentioned in sub-section (2) of section 6 of the said Act, subject to the provisions of sub-section (2A) of section 6 and section 43A of the said Act, for a period of five years.³⁸⁵⁹
- In August 2017, all cases of reconstitution, transfer of the whole or any part thereof and amalgamation of nationalized banks were exempt from the ap-

3853 FICCI-Multiplex Association of India v. United Producers/ Distributors Forum, Case No. 01/2009, available at: https://www.cci.gov.in/sites/default/files/FICCIOrder260511_0.pdf

3854 Shamsher Singh Kataria v Honda Siel Cars Ltd and others, Case No. 03/2011, available at: <https://www.cci.gov.in/sites/default/files/03201127.pdf>

3855 Ibid.

3856 Ibid.

3857 S. 2(h) of the Competition Act, 2002, available at: https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf

3858 https://www.cci.gov.in/sites/default/files/cci_pdf/competitionact2012.pdf

3859 <https://www.cci.gov.in/sites/default/files/notification/S.O.%202039%20%28E%29%20-%2029th%20June%202017.pdf>

plication of provisions of Sections 5 and 6 of the Competition Act, 2002 for a period of ten years.³⁸⁶⁰

- In November 2017, all cases of combinations under section 5 of the Act involving the Central Public Sector Enterprises (CPSEs) operating in the Oil and Gas Sectors were exempt from the application of the provisions of sections 5 and 6 of the Act, for a period of five years.³⁸⁶¹

(j) Describe any reforms (recent or ongoing) of the competition law and related regulatory instruments (access, price regulation) undertaken the last 5 years as a result of the digitalisation of the economy and the emergence of digital platforms

In the year 2018-19, steps towards significant competition reforms were initiated by the Government of India in preparation for the digital economy.

- The Competition Law Review Committee (CLRC) to review the Competition Act, 2002

This Committee was constituted to strengthen and recalibrate Competition Law in India in view of the changing nature of the Indian economy. The terms of reference of the Committee are as follows:³⁸⁶²

1. To review the Competition Act/Rules/Regulations, in view of changing business environment and suggest necessary changes, if required;
2. To look into international best practices in the competition fields, especially anti-trust laws, merger guidelines and handling cross border competition issues;
3. To study other regulatory regimes/institutional mechanisms/government policies which overlap with the Competition Act;
4. Any other matters related to competition issue and considered necessary by the Committee.

The Committee had invited comments from stakeholders on the abovementioned terms of reference. The Committee has submitted its Report to the Government in August, was published on 26 July 2019.³⁸⁶³ The Report largely found the provisions of the present law sufficient to deal with the competition concerns in the digital economy, however, it highlights certain newer approach for competition analysis in order to deal with concerns of the new age markets. This newer approach, in general, tends to bestow more emphasis on 'control and access to data' and 'network effects'.

- The Draft National e-Commerce Policy 2019 (NEC Policy)

As discussed above.

- Draft Personal Data Protection Bill 2018 (PDP Bill)

As discussed above.

3860 <https://www.cci.gov.in/sites/default/files/notification/Notification%2030.08.2017.pdf>

3861 <https://www.cci.gov.in/sites/default/files/notification/Notification-22.112017.pdf>

3862 <http://pib.nic.in/newsite/PrintRelease.aspx?relid=183835>

3863 http://www.mca.gov.in/Ministry/pdf/ReportCLRC_14082019.pdf

(k) Have there been any studies commissioned or prepared? Please list them and briefly summarise their remit.

One market study on e-commerce is being conducted by the Competition Commission of India in partnership with Ernst & Young. Few interim observations, in form of ppt slides, have been uploaded on the Commission's website³⁸⁶⁴ and public comments have been invited on the same (till 30th September 2019). The interim findings of the market study on e-commerce in India, which looked into online food delivery, online hotel booking and online retail shopping suggests that there are certain areas that could give rise to competition concerns.

Compromise on 'platform neutrality' (due to inventory model/dual role of platforms) has been flagged in 'online food delivery' and 'online hotel booking' as well as also alleged in the online retail (despite FDI policy restricting it). Secondly, "opacity of the algorithms" (search, ads etc.) controlled and used by the platforms has been flagged as possible concerns. Further, the 'non-access of data' by the business partners (of their consumers) on the platform and use of data by platforms in promoting their own inventories have also been flagged as possible areas of concerns. Furthermore, 'unilateral and arbitrary' increase of commission (platform fee) and 'deep discounts by platforms posing added burden on businesses on platforms' have been posed as P2B concerns.

There are also few segment-specific concerns, for instance, in online food segment restaurants have allegedly been forced to use the platforms fleet for delivery. Similarly, the inquiry found presence of 'room and price parity restrictions' (MFN) and 'exclusive contracts' in hotel booking segment.

Another market study on media and broadcasting sector is also being considered by the Commission³⁸⁶⁵.

(l) Include any guidelines or legislative proposals made

The CLRC (see above) largely found the provisions of the present law sufficient to deal with the competition concerns in the digital economy. For instance, payment in form of 'personal data' can be considered under the present definition of 'price'. Similarly, existing framework under competition law is sufficient to deal with algorithmic collusion.

Though Committee found that vertical restraints via presence of MFN clauses can be dealt under the present framework under Section 3 of the Competition Act, it felt that "the scope of the Section 3(4) should be broadened to include 'other agreements' that causes or are likely to cause AAEC [appreciable adverse effect on competition] in India, and which do not strictly get covered under the horizontal and vertical arrangements currently envisaged under Section 3"³⁸⁶⁶.

The CLRC also deliberated if the Act (particularly Section 19(4)) should be amended to include 'control over data' and 'network effects' as factors for determining dominant

3864 https://www.cci.gov.in/sites/default/files/whats_newdocument/Interimobservations_30August2019.pdf

3865 <https://www.thehindubusinessline.com/news/cci-to-assess-media-broadcasting-sector-says-sources/article29270427.ece>

3866 Page 156 of the CLRC Report

position, and found that there is no need for any amendment since 'resources of enterprise' as mentioned in provision can include these. It also felt that the provision is inclusive and broad enough to include 'control over data' and 'network effects' as factors for determining dominant position.

As per the CLRC recommendation, the merger threshold provision, which is currently based on asset and turnover, may be amended to introduce 'size of transaction' or 'deal value' threshold in the merger control framework in the Competition Act.

For Details on CCI cases, please see eDigest BRICS case law.

Chapter 15: Country Report – China

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15.1 The Business and Technological Environment for the Digital Economy of China

15.1.1 Internet Access and Use in China

15.1.1.1 Internet User Size and Its Structure Distribution in China

15.1.1.1.1 Internet User Size in China

In 1994, through a 64K international line, China's Internet realized a full-featured connection with the international Internet, and China has entered the Internet era since then.³⁸⁶⁷ After more than 20 years of development and construction, China's Internet infrastructure has been continuously improved, and Internet construction and application have achieved leap-forward development. In 2006, China's Internet penetration rate exceeded 10% for the first time. Since then, the golden development period of China's Internet has been ushered in. The Internet penetration rate has increased rapidly. In 2009, it surpassed and began to lead the global average penetration rate. By 2015, China's Internet penetration rate has exceeded 50%. Benefiting from the size of its population, China has quickly become the world's largest Internet market. In 2016, the number of Internet users in China was 731 million, accounting for 21.5% of the total global user base. In the first half of 2017, the number of Internet users in China has reached 751 million, and the Internet penetration rate is 54.3% (45.9% globally).³⁸⁶⁸ As of June 2018, the number of Internet users in China was 802 million, and the Internet penetration rate was 57.7%. Among them, the number of mobile Internet users reached 788 million, accounting for 98.3% of all users of the Internet.³⁸⁶⁹

3867 See Liu Wei and Pan Yu: "Review of the Development of China's Internet in Twenty Years", New Media and Society, Issue No. 2, 2015.

3868 The data comes from "Analysis of the growth of user scale and traffic in China's Internet industry in 2018", <http://free.chinabaogao.com/it/201802/0226321AR018.html>, date of visit: January 25, 2019.

3869 The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

15.1.1.1.2 Age Structure of Chinese Internet Users

With the continuous and steady development of the Internet industry in China, especially with the growing popularity of the mobile Internet, the Internet has been deeply integrated with the lives of the Chinese people. Emerging industries such as mobile games, live broadcasts, and digital reading have become increasingly mature, and people's demand for high-quality content on the Internet has also increased. This can be evidenced by the distribution and development trends of the age structure of Internet users in China. In general, Chinese Internet users are mainly composed of adolescents, youth and middle-aged groups. As of June 2018, 70.8% of the total are the group aged from 10 to 39, among whom, those aged from 20 to 29 represented the highest proportion, reaching 27.9%; those from 10 to 19 and from 30 to 39 accounted for 18.2% and 24.7% respectively. In addition, the proportion of users aged from 30 to 49 has increased from 36.7% at the end of 2017 to 39.9%. All in all, the penetration of the Internet in the middle-aged population has strengthened.³⁸⁷⁰

Source: CNNIC China Internet Development Status Survey

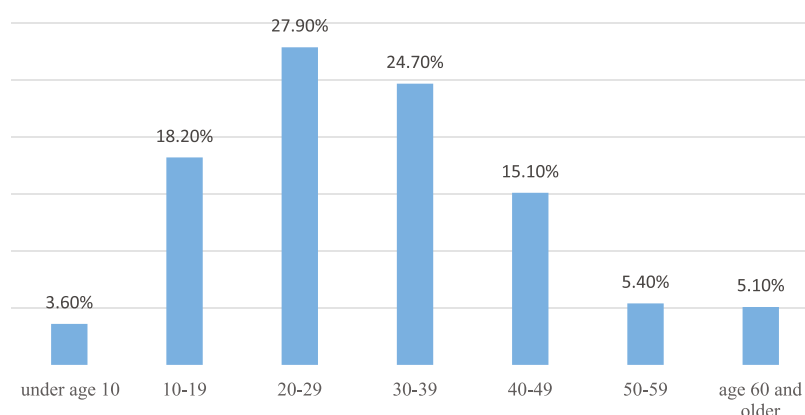


Figure 1 Age Structure of Chinese Internet users

15.1.1.1.3 Gender Structure of Chinese Internet Users

As of June 2018, the proportion of male and female Internet users in China was 52.0%: 48.0%. According to data released by the National Bureau of Statistics, as of the end of 2017, the proportion of males and females in China was 51.2%: 48.83%. It can be seen that the gender structure of Chinese Internet users and the gender attributes of the population are basically the same.³⁸⁷¹

³⁸⁷⁰ The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

³⁸⁷¹ The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

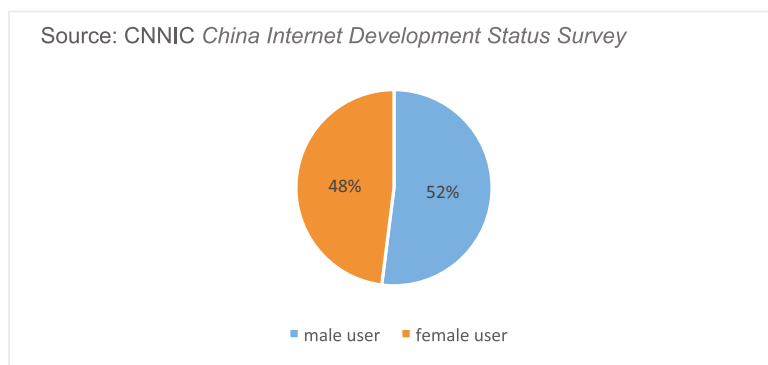


Figure 2 Gender Structure of Chinese Internet users

15.1.1.1.4 Urban-rural Distribution Structure of Chinese Internet Users

As of June 2018, the number of rural Internet users in China was 211 million, accounting for 26.3% of the total Internet users; the number of urban Internet users was 591 million, accounting for 73.7%; from the perspective of Internet penetration rate, the Internet penetration rate in urban areas was 72.7%, and the Internet penetration rate in rural areas was 36.5%. The penetration rate of the Internet in urban areas is significantly higher than that in rural areas. China's rural population is a major component of non-Internet users. Currently, the number of China's non-Internet users is 588 million, of which those in cities and rural areas account for 37.8% and 62.2% respectively.³⁸⁷²

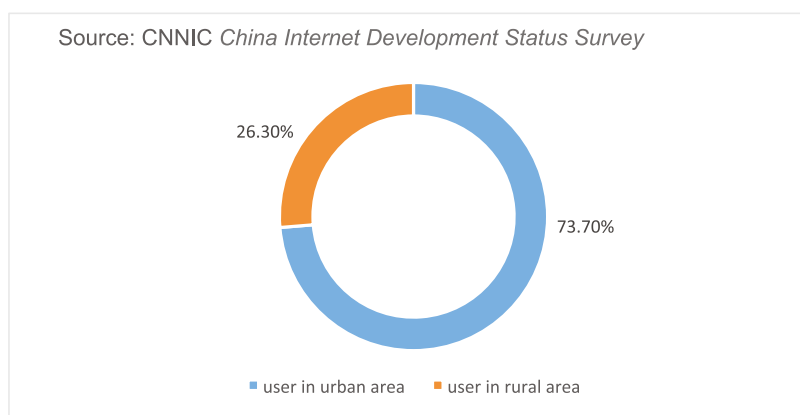


Figure 3 Urban-rural Distribution Structure of Chinese Internet users

15.1.1.2 Availability of China's Internet Network

15.1.1.2.1 China Internet Network Coverage

In order to vigorously promote the development and popularization of the Internet, China is implementing the "Broadband China" strategy, launching the "more affordable Internet connection" campaign, and continuing to advance network infrastructure construction and evolution, as a result, access capabilities, service quality and applica-

³⁸⁷² The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

tion level of broadband networks have been significantly improved, the scale and level of construction of broadband networks are taking the lead internationally. as data released by the Ministry of Industry and Information Technology (hereinafter referred to as MIIT) shows, by the end of April 2018, China had completed fixed assets investment of 67.1 billion yuan in the construction of broadband networks. Across the nation, there were 40 million fiber-optic broadband ports newly added and 120,000 new 4G base stations were newly built, making the size total 3.4 million. China's 4G network had covered 95% of administrative villages and 99% of the population of the country, and more than 95% of administrative villages had gained access to fiber-optic broadband networks. At the same time, 550,000 access point devices have been deployed in 66,000 hotspots throughout the country, providing free Internet access in administrative service halls, transportation hubs, core business districts, tourist attractions, etc., and will continue to cover multiple hotspots in the next phase.³⁸⁷³ Chinese residents are enjoying the fruits of information communication and Internet development.

According to the goal set by the "Broadband China" strategy, by 2020, the gap on broadband network infrastructure development between China's and developed countries will be significantly narrowed, and Chinese nationals will fully enjoy the economic growth, service convenience and development opportunities brought by broadband. The broadband network will cover urban and rural areas across the board. The penetration rate of fixed broadband households will reach 70%, the penetration rate of 3G/LTE users will amount to 85%, and the proportion of broadband in administrative villages will exceed 98%. The broadband access capabilities of urban and rural households will reach 50 Mbps and 12 Mbps respectively, and some household users in developed cities can reach 1 Gbps per second. Broadband applications will be deeply integrated into industrial production and daily life, and the mobile Internet will achieve universal coverage. Technological innovation and industrial competitiveness will be brought to the advanced level, thus forming a sound network and information security system.³⁸⁷⁴

15.1.1.2.2 Network Operators Available to Chinese Consumers

There are three major network operators in China for consumers to choose from, namely China Mobile Communications Group Co., Ltd. (CMCC), China Unicom and China Telecom. As of the end of November 2018, the total number of mobile phone users of the three telecommunications companies had reached 1.56 billion. Among them, mobile broadband users (ie 3G and 4G users) totaled 1.3 billion, accounting for 83.6%; 4G users remained at 1.16 billion, accounting for 74.3%. The total number of fixed Internet broadband access users of the three enterprises reached 405 million, of which 365 million were FTTH/O users, accounting for 89.9% of the total number of fixed Internet broadband access users.³⁸⁷⁵

3873 "China's 4G network covering 99% of the population and 95% of the administrative village enjoying access to fiber-optic broadband", http://www.xinhuanet.com/city/2018-06/11/c_129891657.htm, date of visit: January 18, 2019.

3874 Notice of the State Council on Printing and Distributing the "Broadband China" Strategy and Implementation Plan, http://www.gov.cn/zwqk/2013-08/17/content_2468348.htm, date of visit: January 26, 2019.

3875 "Economic Operation of the Communications Industry in November 2018", <http://www.miit.gov.cn/newweb/n1146285/>

In addition, in recent years, the virtual network operators (VNO) has emerged in China to provide consumers with more choices. The VNO carries out the mobile communication resale business. By contracting the use rights of some communication networks of three companies, the VNO uses its own billing system, customer service number, marketing and management system to sell communication services to consumers. In late 2013 and early 2014, MIIT successively issued two batches of virtual carrier licenses to 19 private enterprises for pilot operation, effectively advancing the speed-up and fee reduction of the Internet and spurring innovation in the telecommunications industry. On April 28, 2018, the MIIT officially issued a document, and decided, for the further development of the mobile communication resale business, to allow private, state-owned, or foreign companies to apply for formal commercialization instead of pilot operation starting on May 1, 2018. The MIIT emphasizes that the wholesale pricing of the basic operators offer to resellers should be lower than the average unit price or package price of the same services of the basic operators, and encourages the resellers to implement the national strategies of “Internet Plus” and “Digital Economy”, use their advantageous resources and capabilities to engage in innovations of service and business models as well as develop and apply new technologies in the IoT industry.³⁸⁷⁶ In the foreseeable future, the involvement of virtual network operators will promote innovation in China’s Internet and mobile communications services, and enhance competition and service levels in the mobile communications market.

15.1.1.2.3 The Ownership of and Regulation over Chinese Network Operators

All three major network operators in China are state-owned enterprises under the administration of the State-owned Assets Supervision and Administration Commission of the State Council (hereinafter referred to as the SASAC). The SASAC, as authorized by the State Council, performs the duties as the investor in accordance with the laws and administrative regulations, particularly the *Company Law of the People’s Republic of China*, and supervises the central enterprises (excluding financial ones) including the three network operators and undertake management responsibilities in respect of the state-owned assets of these companies. As telecommunications companies, these network operators are also subject to industry supervision and management from the MIIT, the regulator of the national information industry. According to the *Regulations of the People’s Republic of China on Telecommunications*, the MIIT’s regulation of telecommunications enterprises covers including business licensing, tariff management, service quality, equipment access and security guarantee. Additionally, the MIIT also administers the Internet industry (including the mobile Internet), coordinates the construction of telecommunications networks, the Internet, and private communication networks, promotes the joint development and sharing of network resources, and guides the self-discipline of telecom and Internet-related industries and the development of related industry or-

n1146352/n3054355/n3057511/n3057518/c6551116/content.html, date of visit: January 18, 2019 day.

3876 Notice of the Ministry of Industry and Information Technology on the Official Commercialization of Mobile Communication Resale Business, <http://miit.gov.cn/n1146285/n1146352/n3054355/n3057674/n4704636/c6153600/content.html>, Date of Visit: 2019 On the 18th.

ganizations. In May 2011, Cyberspace Administration of China (hereinafter referred to as the CAC) was formally established. Its main responsibilities include implementing the national Internet information dissemination policy and promoting the rule-making of the Internet information dissemination, as well as guiding, coordinating and urging relevant departments to strengthen the content management of Internet information and investigate and punish illegal websites, and investigate and deal with illegal and illegal websites according to law. The MIIT has assigned the duty of the original informatization promotion and network information security coordination to the CAC.³⁸⁷⁷

It is worth noting that Chinese network operators enjoy the status of utilities, and their market operations are regulated by the national market supervision department. In fact, since the promulgation and implementation of *Anti-monopoly Law* of the People's Republic of China in 2008, anti-monopoly law enforcement agencies have conducted a number of anti-monopoly investigations on the telecommunications market, involving China Mobile, China Telecom, China Unicom and other telecommunications giants, relating to such monopolized conducts as tied-in fixed telephones with broadband business, clearing traffic at the end of the month, and mandatory use of service items in the package. All the case investigations have been suspended after the telecom operators involved in various localities made a rectification commitment to the anti-monopoly law enforcement agencies. Since then, all three operators have launched a series of "more affordable Internet connection" policies of networks for the benefit of consumers. China's anti-monopoly law enforcement agencies have emphasized in the investigation of a number of state-owned telecom giants that large state-owned enterprises will not be free from anti-monopoly law enforcement because of their special role in the national economy; instead they should also value the importance of complying with anti-monopoly law.

15.1.1.2.4 Affordability of China's Internet Network

The Chinese government stresses that in order to develop Internet and information industry, it is necessary to implement the people-centered development thinking and provide the people with useful, affordable and good-to-use information services, so that hundreds of millions of people can share their Internet development achievements and have a greater sense of gain. In order to meet the expectations and needs of the people, the Chinese government has been committed to the development of the Internet in recent years. Since 2015, telecom companies have started a large-scale "more affordable Internet connection" operation, and the average tariff rates of fixed broadband and mobile traffic have dropped by more than 50% and 39% respectively.³⁸⁷⁸

As the infrastructure construction and broadband speed improve, and network costs

3877 See Notice of the State Commission Office on the Responsibilities and Institutional Adjustments of the Ministry of Industry and Information Technology, <http://www.miit.gov.cn/n1146285/n6496186/c3722500/content.html>, date of visit: January 26, 2019 day.

3878 See "Xi Jinping: Providing Affordable, Useful Information Services to our People", <http://www.chinanews.com/gn/2016/04-26/7849160.shtml>, date of Visit: January 26, 2019.

continue to decrease, access and cost issues are no longer the main factors that plague the Chinese people in using the Internet. Even in remote areas, fiber-optic broadband access and high-quality networks are becoming more and more popular. Meantime, domestic long-distance and roaming charges for mobile phones have been canceled, and international long-distance fare reduction has also been put on the agenda, and the access fees for SME Internet private lines have been significantly reduced.³⁸⁷⁹

15.1.1.2.5 China Internet Access Service

According to the *Telecom Service Classification Catalogue (2015 Edition)* issued by the MIIT, China's Internet access service mainly refers to the use of access servers and corresponding software and hardware resources to establish service nodes, and the use of public telecommunications infrastructure to connect business nodes with the Internet backbone network to provide Internet access services for all types of users. The users can connect to his service node by means of a public communication network or other access means, and access the Internet through the node. At present, the main types of Internet access services and their development status in China are as follows.³⁸⁸⁰

(1) Internet Service Provider Service (ISP Service³⁸⁸¹). According to the China Academy of Information and Communications

Technology (CAICT), as of the end of August 2017, there were 3,296 ISP-licensed enterprises in China. Among them, 1,306 cross-regional businesses were licensed by the MIIT and 1990 local companies were licensed by communications administration bureaus of their respective provinces, autonomous regions, or municipalities.³⁸⁸²

(2) Internet Data Center Service (IDC Service). The IDC service refers to the provision of the placement, agent maintenance, system configuration and management services for the Internet or other network related devices such as the user's server by means of the corresponding computer room facilities, and the provision of rental services of equipment including database systems and servers and their storage space, as well as agent lease of communication lines and egress bandwidth and other application services. As of October 2017, there are 1,417 IDC-licensed companies in China.³⁸⁸³ Driven by the national strategies of "Internet Plus", big data, digital economy, state policy guidelines and the rapid development of the mobile Internet, China's IDC business revenue had

3879 See "How to Capitalize on the Opportunities as China's Internet Enters a New Era of Development?", the People's Daily, November 27, 2017, edition 1.

3880 See Liu Qing, Wu Hao: "Research on Internet Access Service Management in China", in Modern Telecom Technology, issue No. 4, 2015.

3881 China's ISP business mainly refers to the use of access servers and corresponding software and hardware resources to establish service nodes, and the use of public telecommunications infrastructure to connect business nodes with the Internet backbone network to provide Internet access services for all types of users.

3882 "The Number of ISP-licensed Enterprises in China as of August 2017", https://www.sohu.com/a/204213019_654915, date of visit: January 26, 2019.

3883 See "China's IDC Industry Developing Rapidly and 1417 Companies Obtaining IDC Licenses", <https://fiber.ofweek.com/2017-12/ART-210022-8120-30183024.html>, visit date: January 26, 2019.

continued to grow rapidly. As estimated by CAICT's Data Center White Paper (2018), the total revenue of China's IDC industry reached 65.04 billion yuan in 2017, of which the traditional IDC business income stood at 51.28 billion yuan, accounting for 78.8% of the total revenue of IDC.³⁸⁸⁴

(3) Internet Resource Collaboration Service (Cloud Service). In recent years, cloud computing has become a basic platform for China's Internet innovation and entrepreneurship. The State Council issued the *Opinions on Promoting the Innovation and Development of Cloud Computing and Cultivating the New Business Forms of the Information Industry* in 2015. The opinions sought to clarify the ideas and goals of cloud computing development in China and encourage government at all levels to explore the use of cloud computing to meet the needs of e-governance and public services and guide the migration of e-governance to a new generation of governance based on cloud computing platforms so as to drive the growth and expansion of the entire domestic cloud service market. According to CAICT's Data Center White Paper (2018), China's cloud service revenue reached 13.76 billion yuan in 2017. With the implementation of the "Enterprise Cloud" initiative, it is expected that the proportion of cloud service revenue in China's IDC business revenue will continue to rise.³⁸⁸⁵

(4) Content Distribution Network Service (CDN Service). CDN service refers to the formation of a traffic distribution and management network platform through the use of node server groups distributed in different areas to provide users with decentralized storage and high-speed cache of content; and the distribution of content to a fast and stable cache server according to network dynamic traffic and load conditions to improve the access response speed of the user content and availability of services. The scale of China's CDN market has continued to grow rapidly in recent years. In 2016, the market totaled 11 billion yuan; and its coverage rate reached 17.2%, which is far lower percentage when compared with that in mature markets in North America.³⁸⁸⁶ In 2017, China's CDN market rose to 13.61 billion yuan. With the emergence of various new types of networking services such as live broadcast, short video, AR and AI, CDN will usher in an even larger market. It is expected that the market will approach 25 billion yuan in 2019, with a growth rate of over 35%.³⁸⁸⁷ At present, there are three main types of CDN suppliers in China: the first type is traditional professional CDNs represented by Shanghai Wangsu Science & Technology Co., Ltd., China Cache and Dnion. They provide professional CDN services for the enterprises that build their own servers. The second type is CDN acceleration on the cloud platform. Representative companies are Alibaba Cloud, Tencent Cloud and Jinshan Cloud. The third type is the CDN innovators. They mainly

3884 CAICT's Data Center White Paper (2018), http://www.databanker.cn/uploads/4/file/public/201810/20181017180220_pgtepu8dsw.pdf.

3885 CAICT's Data Center White Paper (2018), http://www.databanker.cn/uploads/4/file/public/201810/20181017180220_pgtepu8dsw.pdf.

3886 "Analysis of China's CDN Industry Development Status and Market Competition Patterns in 2018", <http://www.chyxx.com/industry/201806/647708.html>, date of visit: January 27, 2019.

3887 Hu Haibo from CAICT: "In-depth Interpretation of CDN Industry Development Status and Market Supervision Strategy", <http://www.cww.net.cn/article?id=442175>, date of visit: January 27, 2019.

expand the node through P2P technology and intelligent hardware to achieve unlimited nodes. The leading business of this type is Thunder Star Domain.³⁸⁸⁸

15.1.2 Overview of China's Digital Economy Development

15.1.2.1 Overall Situation of China's Digital Economy Development

In order to speed up the construction of “Digital China”, the Chinese government has done a lot, including actively implementing the “Internet Plus” initiative and advance the implementation of the “Broadband China” strategy and the national big data strategy. In addition, a number of strategic actions and major projects will be launched, 5G R&D applications will be promoted, and an IPv6 scale deployment action plan will be implemented. China's digital economy is entering the fast lane, and the “Digital China” strategy has achieved world-renowned achievements. According to the *China Digital Economy Development and Employment White Paper (2018)* released by the CAICT in March 2018, in the year of 2017, the size of China's digital economy reached 27.2 trillion yuan, a nominal year-on-year growth rate of more than 20.3%, far higher than the GDP growth rate of the year, was achieved, and the digital economy accounted for 32.9% of GDP, with an increase of 2.6 percentage points year-on-year. Thus the digital sector has become the core driving force for China's economic growth and job creation. In 2017, Preliminary calculations showed that 171 million people were working in the digital economy of China, accounting for 22.1% of the total employment.³⁸⁸⁹

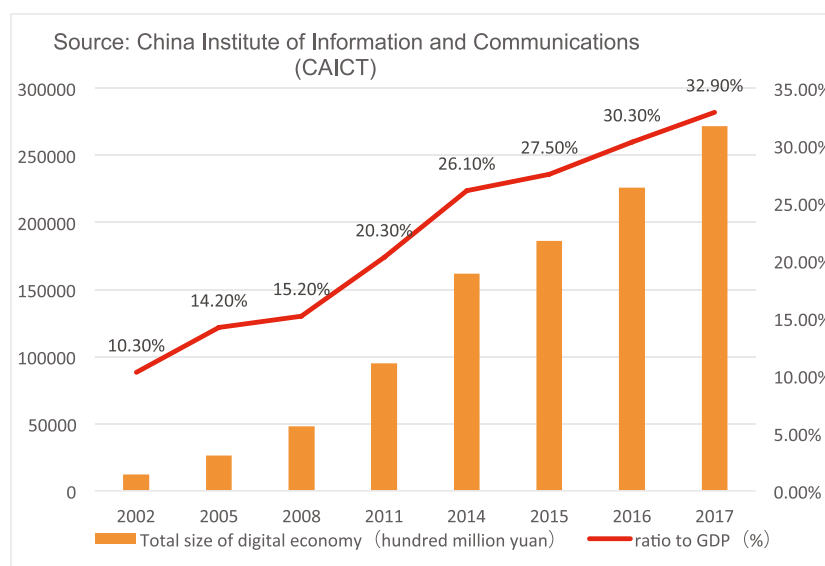


Figure 4 China's Digital Economy Scale and its Share of GDP

3888 “Analysis of China's CDN Industry Development Status and Market Competition Patterns in 2018”, <http://www.chyxx.com/industry/201806/647708.html>, date of visit: January 27, 2019.

3889 Lu Chuncong: “White Paper on China's Digital Economy Development and Employment (2018)”, https://www.sohu.com/a/228230323_99953786, date of visit: January 27, 2019.

15.1.2.2 Construction and Development of China's Smart Cities

In 2012, the Ministry of Housing and Urban-rural Development (hereinafter referred to as MOHURD) issued the *Notice on the Pilot Work of National Smart Cities*. It was just in this document that the Chinese government first proposed the development of smart cities. In it smart cities were defined as a new model for integrating information resources, coordinating business application systems and strengthening urban planning, construction and management through the integrated use of modern science and technology. The document also included the "Interim Administrative Measures for National Pilot Smart Cities" and "An Indicator System of the National Pilot Smart Cities (Districts, Towns) (Trial)" which were designed to encourage eligible localities to actively apply for the status of pilot cities (districts, towns). Since 2013, the MOHURD has announced three batches of 290 pilot cities (districts, towns) in China. When the initial development period of 3 to 5 years was over, the MOHURD and other competent authorities will organize assessments of these pilot cities (districts, towns), and then rate those pilot cities that have passed the assessment into three levels: one-star (the lowest level), two-star and three-star (the highest level).

Thanks to favorable policies, the development of smart cities in China has achieved remarkable results in first-tier cities and developed second-tier cities, and corresponding industries such as intelligent transportation, smart healthcare, and smart home will also benefit. Take Zhejiang Province for instance, through cooperation with companies like Hangzhou-based Alibaba Group, Ant Financial Services Group and NGARihealth, smart city services such as "Internet Plus governance", "Internet Plus transportation", "Internet Plus healthcare" and "Smart Police" can now be widely provided in Hangzhou and other major cities in Zhejiang. These cities, in terms of the penetration rate of mobile, cashless payment, are taking the lead in the world. In addition, the development of smart cities is rapidly spreading to other second and third-tier cities (districts, towns). Apart from efforts made by pilot cities, many non-pilot cities are also planning to build smart cities. China's "13th Five-Year Plan" has clearly specified that there were more than 500 smart cities, and the number would continue to increase.

Meanwhile, the Internet and urban public service system have also entered a new stage of integrated development with each other, given the fact that the Internet has markedly increased the efficiency of public service provision. As of June 2018, online government service users in China reached 470 million, accounting for 58.6% of the total Internet users. Among these e-government service users, 42.1% used Alipay or WeChat city service platform. In fact, the two platforms have become the most commonly used channels to enjoy e-government services; the government WeChat public account came as the third one of importance, with the usage rate being 23.6%. The usage rates of government websites, government mobile applications and government microblogs were 19.0%, 11.6% and 9.4% respectively.³⁸⁹⁰ With E-government, urban public services have become more effective it is more convenient for companies and individuals to obtain information and handle transactions.

3890 The 42nd Statistical Report on Internet Development in China, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

15.1.2.3 Main Financing Channels for Chinese Digital Economy Enterprises

According to the *World Internet Development Report 2018* and *China Internet Development Report 2018*, in the country, in 2017, the digital economy generated a revenue of 27.2 trillion yuan, and it contributed 55% to GDP growth.³⁸⁹¹ In the list of Forbes of Global Top 100 Digital Economy Entities, 16 companies were from Chinese mainland, second only to the United States. The Chinese government has clearly stated that it will give priority to the building of a stronger China both in network technology and digital economy in the country's economic and social development. To this end, the government has increased support for financing policies for digital economy companies, like deepening the reform of the New Three Board, encouraging private equity and venture capital funds to invest in the digital economy, and developing the capital market to spur innovation and entrepreneurship in the digital economy.³⁸⁹² Specifically, the financing channels of China's digital economy companies mainly include the following:

The first is raising funds from social investors through stock issuance. The China Securities Regulatory Commission (CSRC) supports the listing and financing of innovative companies representing "new technologies, new industries, new forms, and new models", while improving the efficiency of IPO and refinancing audits for digital economic enterprises. From 2017 to August 2018, a total of 493 companies completed the IPO, raising funds of 319.972 billion yuan, the IPO of high-tech companies reached 80%, and the digital economy has grown as a major component.³⁸⁹³ The second is achieving capital integration through mergers and acquisitions. The CSRC has significantly reduced the institutional costs of mergers and acquisitions and encourages mergers and acquisitions to be conducted "between upstream and downstream in the same industry". From 2017 to August 2018, listed companies in the information transmission, software and information technology services industry implemented a total of 424 mergers and acquisitions, with a transaction amount of 485.09 billion yuan. The merger targets include "big data", "Internet of Things", "artificial intelligence", etc. The main area of the digital economy. The third is promoting the formation of long-term capital and support the innovation and entrepreneurship of the digital economy through the development of private equity investment and venture capital funds.³⁸⁹⁴ The fourth is government investment. On September 18, 2018, China Development Bank and the National Development and Reform Commission signed the *Development-oriented Financial Cooperation Agreement for Comprehensive Support of Digital Economy Growth*, planning, in the next five years, to invest 100 billion yuan to support the key projects in the fields of big data,

3891 "The Output Value of the Digital Economy Reaching 1 Trillion and the Value of Investing in Big Data Companies Turning Apparent", <http://money.163.com/18/1221/11/E310TJA80025814V.html>, date of visit: January 20, 2019.

3892 "China's Economy: Accelerating Digital Infrastructure Development and Increasing Support for Digital Economy Financing", <http://www.fx361.com/page/2018/0926/4275220.shtml>, date of visit: January 20, 2019.

3893 "CSRC: Supporting the Efficient Financing of Digital Economy Entities", http://www.sohu.com/a/257068982_135869, date of visit: January 20, 2019.

3894 "CSRC: Supporting the Efficient Financing of Digital Economy Entities", http://www.sohu.com/a/257068982_135869, date of visit: January 20, 2019.

Internet of things, cloud computing, new smart cities, and digital silk roads.³⁸⁹⁵

15.1.3 Overview of China's E-commerce Development

E-commerce is an important part of the digital economy and one of the most active and representative forms in the digital economy. In recent years, against the backdrop of booming development of digital economy in China, e-commerce has stepped into a new round of innovation and growth. With the government policies and driven by the market, China's e-commerce development is now more focused on efficiency, quality and innovation, and has become a new engine of China's economic growth. On May 29, 2018, the Ministry of Commerce released the *China E-Commerce Report (2017)*. The report shows that in 2017, China's e-commerce transaction volumes reached 29.16 trillion yuan, with an increase of 11.7% year-on-year. Among them, the commodity e-commerce transaction volume was 16.87 trillion yuan, a year-on-year increase of 21.0%; the service e-commerce transaction volume was 4.96 trillion yuan, a year-on-year increase of 35.1%.



Figure 5 Total E-commerce Volumes and Year-on-year Growth Rates in China from 2011 to 2017

Meanwhile, the development advantages of China's e-commerce continue to amplify, with its online retails size being the world's largest and enthusiasm of innovation leading the world. According to the National Bureau of Statistics, as of the end of 2017, in China, the number of online shopping users reached 533 million, a year-on-year increase of 14.3%; the amount of online payment made through non-bank payment institutions reached 143.26 trillion yuan, a year-on-year increase of 44.32%; 40.06 billion parcels were delivered by couriers, a year-on-year increase of 28%; E-commerce workers employed directly and indirectly totaled 42.5 million people. The structure of China's e-

³⁸⁹⁵ "Investing 100 billion in five years to vigorously promote the development of the digital economy, <https://baijiahao.baidu.com/s?id=1611926461387340632&wfr=spider&for=pc>, date of visit: January 20, 2019.

commerce market has continuously moved for the better, and the quality of industry development continued to improve. And service transactions have been taking a growing share in e-commerce volumes. In 2017, corporate transactions accounted for 60.2% and individual transactions accounted for 39.8% in the e-commerce business, both of them still enjoying the momentum of growth. The contribution rate of online retails of physical commodities to the total retail sales of social consumer goods reached 37.9%, playing a more powerful role in driving consumption. The online retail sales of rural areas increased by 39.1% year-on-year, while the online retail sales of agricultural products increased by 53.3% year-on-year. Rural e-commerce helped make “selling rural products” much easier and promoted the upgrading of the country’s agricultural structure. The cross-border e-commerce merchandise exported subject to the inspection at the Customs recorded a growth rate of 41.3%, and the way in which these products went global has increasingly become important in Chinese merchandise exports.³⁸⁹⁶

With the integration of e-commerce with social applications and digital content, and the growth of mobile payment, the enthusiasm of Chinese consumers to participate in e-commerce is increasing, and online business transactions such as shopping, food take-out, and travel booking are growing rapidly. As of June 2018, the proportion of online shoppers and other users paid online accounted for 71% of the total Internet users (70.7% of these shoppers and payers were mobile online shoppers totaling 557 million); thus the Internet shopping and payment has become a popular way commonly used by netizens in China. 364 million buyers ordered their food online with a year-on-year increase of 6.0% compared with the end of 2017, spurring the development of related industries. With emerging technologies such as big data and artificial intelligence, the leading food delivery platforms had made logistics and distribution far more efficient. As of June 2018, there were 393 million Chinese consumers booking air tickets, hotels, train tickets and travel and holiday products through the Internet, about an increase of 17.07 million and a growth rate of 4.5% when compared with the end of 2017.³⁸⁹⁷

15.1.4 Overview of China’s Social Network Development

15.1.4.1 The Main Social Networking Platform Currently Popular in China

The development of social networks in China has experienced three stages: infancy (1999-2004), rise (2005-2007), and popularity (2008-present).³⁸⁹⁸ With the use and promotion of China Mobile’s 4G communication network, the number of mobile phones and other mobile terminal devices is increasing, and it has gradually replaced PCs, form-

3896 Source: China E-Commerce Report 2017, <http://dzsws.mofcom.gov.cn/article/ztxx/ndbg/201805/20180502750562.shtml>.

3897 Source: The 42nd Statistical Report on Internet Development in China, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

3898 “Analysis of the Status quo of the Social Networking Industry in 2018 and the Further Increase of Internet Users Helping Expanding Domestic Scale”, <https://www.qianzhan.com/analyst/detail/220/180517-58ca9378.html>, date of visit: January 29, 2019.

ing a new social network trend – mobile social networks. According to statistics, mobile phones and other portable terminal devices has become the most frequently used application for mobile Internet users to carry out social networking. With Mobile network social networking as a communication platform, Chinese online social networking has become more mobile, real-time and convenient.³⁸⁹⁹ Mobile social networking applications represented by instant communication ones have fostered large-scale loyal users as they meet the life, social, emotional and informational needs. Various social networking platforms also attract different user groups through different product positioning. For example, in the social field of acquaintances, Tencent's QQ is focused on catering to the entertainment-oriented features of young users, while WeChat continues to enhance the functionality of small programs, connecting users and retail, e-commerce, life services, government and people's livelihoods online and offline. In the social networking among strangers, Momo occupies an important market position. In addition, the size of users of social products used in office scenarios, represented by DingTalk and corporate WeChat, continues to grow.

WeChat is a network platform for Tencent's integrated real-time communication, entertainment social and life services launched in 2011. Users can realize various forms of instant communication by sending voice, pictures and text information. The "moments" function can enable users to share wonderful moments in their life and promote social networking among acquaintances. In addition, it also has "game center" and "WeChat payment" to provide users with more entertainment and recreation possibilities, as well as life experiences. The "Public Platform" also allows each user to build their own brand. WeChat is gradually evolving from a communication tool to an open platform that connects various industries.

QQ space is a social networking product derived from Tencent's instant messaging tool QQ. It was developed and officially launched in 2005. It has been loved by many Chinese netizens. Now it has grown into a social platform that accommodates all kinds of relationship chains of netizens. It can meet the demand for display, communication and entertainment and is committed to creating an open platform for the Chinese Internet, and, together with third-party websites, to providing excellent and personalized social networking services for Chinese netizens.

Weibo, also known as the Chinese version of twitter, enables users to access through multiple mobile devices such as PCs and mobile phones, to realize instant sharing and information communication in multimedia formats including texts, pictures and videos. In 2009, Sina.com launched the "Sina Weibo" beta, becoming the first portal website to provide Weibo services.³⁹⁰⁰ As a form of social media, benefiting from the influence of celebrities, superstars and media content ecology, as well as the vigorous development of short videos and mobile live broadcasts, Weibo is very popular among Chinese

3899 Qin Rui: "The Rise and Development of China's Social Network", in *Journal of Chifeng College (Natural Science Edition)*, issue No. 17, 2016.

3900 Weibo refers to Sina Weibo, although there are other Weibo products such as Tencent Weibo, NetEase Weibo, Sohu Weibo, etc., unless indicated otherwise.

netizens. It is worth mentioning that many government departments have also opened government microblogs for collecting opinions, listening to public opinion, publishing information, serving the public, and building a communication platform of social participating in political discussion through interaction with the public.

15.1.4.2 User Aggregation and Homing of Social Network Platforms

Since a variety of mobile social applications can meet the different needs of users, users will therefore choose applications depending on different scenarios and the image they hope to present. In general, Chinese Internet users implement multi-homing related to social networks. According to the *Insight Report China Mobile Social Users 2017* released by iResearch, there were 5.4% of users using only one mobile social application; 36.7% of users using three mobile social applications, and 30.3 % using two mobile social applications; and still 9% of users who use even more than five mobile social applications. The report also showed that three kinds of social networking were most often chosen: integrated, interest-oriented and picture-based.³⁹⁰¹

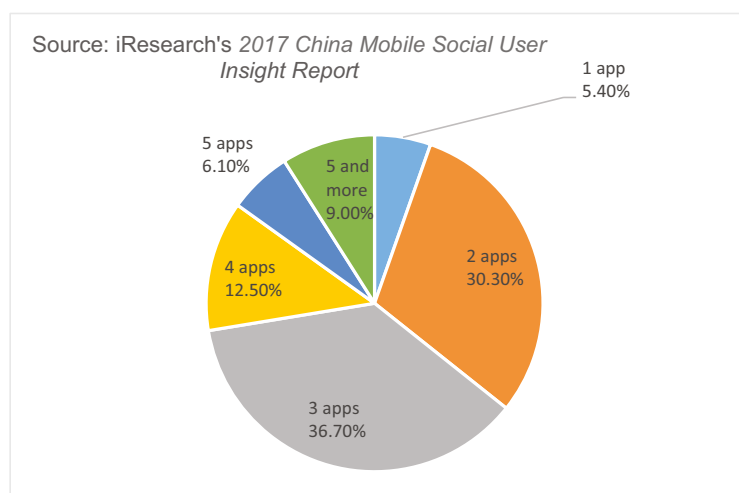


Figure 6 the Number of Mobile Social Applications used by Chinese Mobile Social Users in 2017

Among the types of mobile social applications, integrated app, interest-oriented app, picture-based app, business app and campus app were ranked among the top five, among which integrated app and interest-oriented app were the most commonly used ones and firmly occupied the leading position in mobile social networking and social products such as business and dating apps would receive more attention.³⁹⁰²

³⁹⁰¹ iResearch Consulting: Insight Report on China Mobile Social Users 2017, <http://www.199it.com/archives/609904.html>.

³⁹⁰² iResearch Consulting: Insight Report on China Mobile Social Users 2017, <http://www.199it.com/archives/609904.html>.

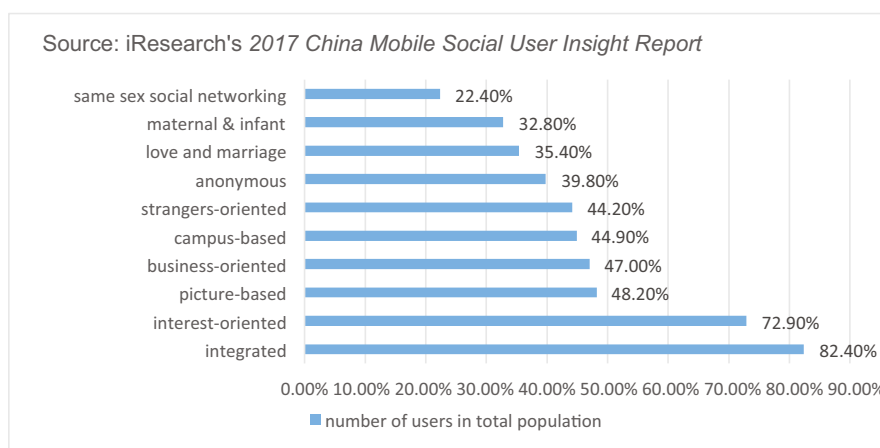


Figure 7 Types of Social Applications Frequently Used by Chinese Mobile Social Users in 2017

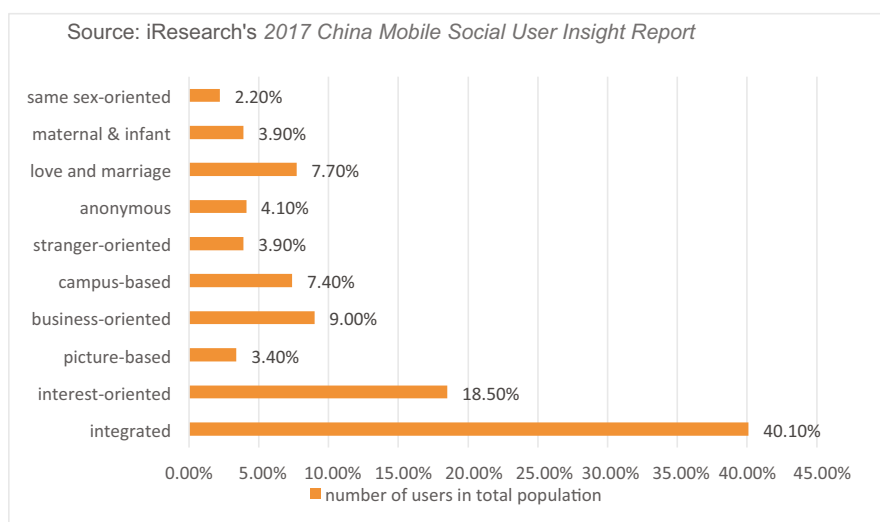


Figure 8 Types of Social Applications Most Commonly Used by Chinese Mobile Social Users in 2017

15.1.5 Overview of China's Internet of Things and Industry 4.0 Development

15.1.5.1 Status Quo of China's IoT Development³⁹⁰³

Since the introduction of "Smart Earth", the concept of the Internet of Things has been rapidly recognized on a global scale and has become the core driving force for a new round of technological revolution and industrial transformation. In recent years, information and communication technologies represented by the IoT are accelerating their transformation into real productivity—evolving from simple tools and products to the infrastructure and key factors reshaping the way of production and organization. The ICTs have profoundly changed the traditional industrial form and people's lifestyle and generated a large number of new technologies, products and models, which thus trig-

3903 CAICT: "Internet of Things White Paper (2016)", <http://www.cac.gov.cn/files/pdf/baipishu/wulianwang2016.pdf>.

gering a wave of global digital economy. With the top-level design of the Chinese government and the unremitting efforts of various localities and departments, the IoT has entered a new phase of deep integration with traditional industries. The development of the Internet of Things has achieved remarkable results. The transformation and upgrading of industrial manufacturing is becoming a major driver of the Industrial Internet of Things. An important driving force for development. In terms of user and industry scale, according to the MIIT, as of the end of June 2018, the number of final IoT users in China had reached 465 million, and the scale of the Internet of Things has exceeded one trillion yuan. The IoT cloud platform has become a crucial area of competition. In terms of the standard systems, the IoT Integrated Standardization System Guidelines were formulated, and more than 900 standard items were reviewed. International IoT standards including IoT reference architecture, intelligent manufacturing, electronic health indicator evaluation, IoT semantics and big data, were set and published. In terms of industrial layout, the four major regional clusters in the Bohai Sea, the Yangtze River Delta, the Pan-Pearl River Delta as well as the central and western areas came into being. The initial success was in the development of national-level IoT industrial bases such as Wuxi, Chongqing, Hangzhou and Fujian. Such IoT Industrial Parks in Beijing, Shanghai, Shenzhen and Chengdu were booming robustly. In addition, China's technological innovation in the key links of the Internet of Things continued to advance, and its industrial capabilities kept improving, as shown in the following aspects.

(1) China is actively leading the global NB-IoT standards and industry development. Huawei proposed the demand for NB-IoT (narrow-band IoT) at the 3GPP International Organization for Standardization, worked with Ericsson and Qualcomm to develop the globally influential NB-IoT standard, and finally released the standard in June 2016. The NB-IoT technology received recognition and commitment from the global LTE industry, and the industry chain is in the process of being formed. Chinese operators proposed their own NB-IoT commercial plans, and the production and commercialization of NB-IoT products is accelerating.

(2) The sensor market is growing rapidly and the local industry chain is becoming more complete. Driven by IoT applications, China's sensor market reached 110 billion yuan in 2015. It is expected to reach 211.5 billion yuan by 2020, with a compound annual growth rate of 14%. At present, China's sensors for IoT applications have basically covered several categories such as sports, environment and optics and dozens of specific fields, and quite a few internationally renowned manufacturers have emerged. At the same time, the sensor industry innovation system has kept improving, with its means of industrial organization quickly shifting into the virtual IDM model featured by specialized division of labor.

(3) Local players begin to transform from discrete device manufacturers to systemized solution providers. In order to meet the flexible, intelligent and integrated development needs of the Internet of Things, and to increase the added value of sensor products, local manufacturers have constantly strengthened their ability to provide integrated solutions.

(4) China Gradually takes an advantageous position in some IoT international standardization organizations. China's Internet of Things standardization has continued to play an active role, leading the formulation of standards in some important areas. First, Chinese experts have held some important positions in the standardization organizations which serves as a good foundation for promoting relevant standards led by China. As of March 2016, in the related fields of Internet of Things, such as OneM2M, 3GPP, ITU, IEEE, etc., China has obtained relevant leadership position in standardization organizations involving more than 30 IoT-related standards, and presided over the standardization work in some fields, effectively enhancing the global impact of China. Second, some domestic entities have actively initiated projects, and China has become an important force in advancing the standardization of the Internet of Things. Chinese companies have continued to carry out technological innovation and standard investment, and have worked with developed countries to set standards in the areas such as IoT wireless wide area communication network, web-based IoT service capabilities, wearable devices, and connected vehicles. These efforts have promoted the development of global mobile IoT infrastructure and business applications. Third, China has gradually established its dominant position in setting important standards, particularly in the fields of IoT semantics, IoT big data, and IoT gateways, etc.

15.1.5.2 China Industry 4.0 – “Made in China 2025”

In the context of the global industry entering the era of 4.0, the Chinese government proposed “Made in China 2025” in 2015, which is the action plan of the Chinese government to implement the first decade of the strategy of build a stronger manufacturing industry in China. “Made in China 2025” is also known as “Chinese Edition of Industry 4.0”. It is a development plan formulated in response to meet the needs of transforming and upgrading the manufacturing industry against the background of major changes in the economic environment of China.

In contrast with German “Industry 4.0” and the U.S. “National Strategic Plan for Advanced Manufacturing”, the goal and mission of “Made in China 2025” are about improving the innovation capability and quality of manufacturing through the transformation and upgrading of traditional industries. This is in line with the development foundation and realistic conditions of China's manufacturing industry. This strategy proposes to adhere to a basic policy that is “innovation-driven, quality-first, talent-oriented and featured by green development and structural optimization”; and follow a basic principle that is “market-led, government-guided; about seeking both short and long-term interests, focusing on key areas while taking a holistic approach, and carrying out win-win cooperation while enhancing independent development capabilities.”

According to the action plan, to achieve the “Made in China 2025” goal, we must complete the “Nine Major Tasks” and implement the “Five Major Projects.” The various tasks involved in “Made in China 2025” have generated staged results, playing an important role in stabilizing industrial growth and accelerating the transformation and upgrading of the manufacturing industry, but at the same time, they also face many difficulties and

problems. The Chinese government will improve the manufacturing development environment, pragmatically promote international exchanges and cooperation, and use bilateral and multilateral cooperation mechanisms to strengthen the alignment of “Made in China 2025” with industrial development strategies of other countries in order to jointly meet the challenges brought about by the new round of scientific and technological revolution and industrial transformation and achieve win-win cooperation.

The *Trend Report on Patents Involving Ten Key Technical Fields* of “Made in China 2025” issued by the Intellectual Property Center of the National Industrial Control Systems Cyber Emergency Response Team (i.e. the Electronic Intellectual Property Center of the MIIT) in July 2017. The report showed, in ten key fields, that great numbers of high-quality patents had been filed very proactively, and the total number of patent applications was 3,166,882, the number of invention patents was 1,813,689 with 668,448 granted. Roughly, the invention patent application accounted for 50% on average with the highest proportion in aerospace equipment; the granting rate of invention patents in ten key fields with the highest rate in new materials. In terms of geographical distribution, the number of invention patents granted by Guangdong, Beijing and Jiangsu represented the largest quantities of patents in the country.³⁹⁰⁴

15.1.6 Market Penetration of China’s Digital Platforms and their Ownership

15.1.6.1 The Concentration of Internet Access Providers and their Ownership Profiles

As mentioned above, China currently has three network operators, China Mobile Communications Group Co., Ltd. (CMCC), China Unicom and China Telecom, all of which are state-owned enterprises, subject to the supervision of the State-owned Assets Supervision and Administration Commission of the State Council (hereinafter referred to as the SASAC).

According to the financial reports released by the three operators, the three operators achieved a total revenue of 1,381.529 billion yuan in 2017, with China Mobile taking the largest share, accounting for 53.6%. Specifically, in 2017, China Mobile’s revenue was 740.5 billion yuan, China Telecom’s revenue was 366.2 billion yuan, and China Unicom was 274.829 billion yuan. From the perspective of net profit, the three operators in 2017 achieved a net profit of 134.745 billion yuan, and China Mobile alone accounted for 84.43%. In terms of the number of 4G users, in 2017, China Mobile had a total of 649.507 billion users, China Telecom had 182.04 million and China Unicom had 174.876 million, and their market shares were 64.5%, 18.1% and 17.4% respectively. In terms of fixed communication, in 2017, the number of fixed network broadband subscribers China Mobile was 112.687 million, that of China Telecom was 133.53 million, and the figure of China Unicom was 76.539 million. Their market shares were 34.9%, 41.4% and 23.7% respectively.

3904 “The Trend Report on Patents Involving Ten Key Technical Fields included in ‘Made in China 2025’ released”, http://www.sohu.com/a/156987995_752834, date of visit: January 21, 2019.

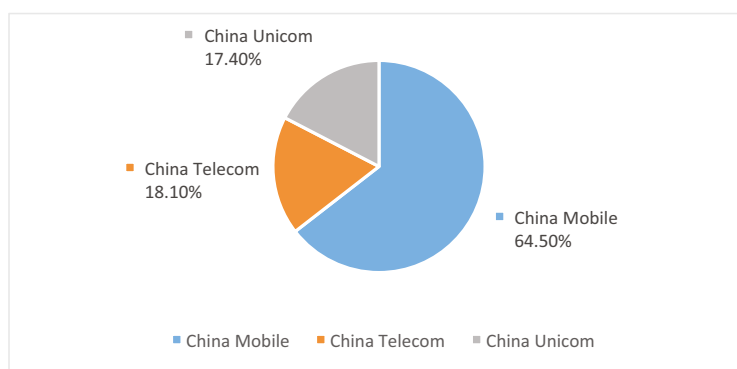


Figure 9 Market Shares of 4G Users of Three Operators in China in 2017

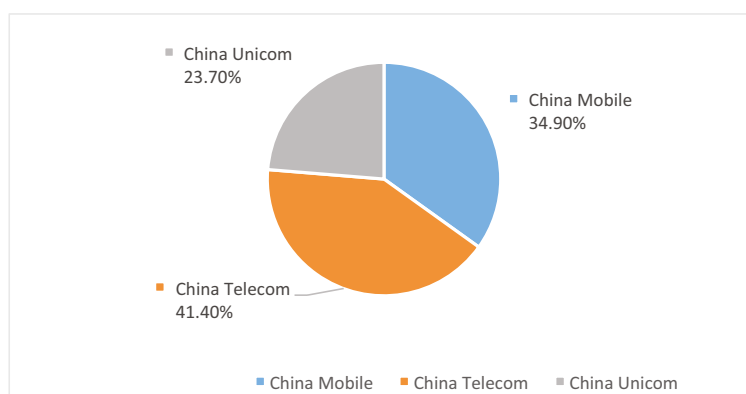


Figure 10 Market Shares of Fixed broadband Subscribers of Three Operators in China in 2017

15.1.6.2 The Market Concentration of Search Engine Platforms and their Ownership Profiles

At present, China's Internet search engine companies mainly include Baidu, Sogou Inc., 360 Search. The foreign search engines operating in China mainly include Google (in Hong Kong, China) and Microsoft Bing. According to the *China Internet Development Report 2018* published by the Internet Society of China,³⁹⁰⁵ the size of China's search engine market reached 77.52 billion yuan in 2017, an increase of 7.1% year-on-year. The number of search engine users reached 640 million, an increase of 6.2% compared to 2016. From the development trend of search engines, the general search is shifting to the vertical field; search is likely to be combined with hardware to become a new entry; the search forms will shift to voice and photo search; therefore, AI technology will constitute the core competitiveness of search engine companies.

The Market concentration of the Chinese search engine market is relatively obvious, and the competitive situation is basically stable. Baidu's market share is as high as 77.2%, being No. one search engine in the Chinese market. Baidu is the world's largest Chinese search engine and the largest website in Chinese. Founded in Beijing on January 1, 2000.

3905 "The Report on China Internet Development 2018 Released: Chinese netizens reaching 772 million in 2017", <https://www.cnbeta.com/articles/tech/746083.htm>, date of visit: January 30, 2019.

Baidu's Internet search products and services mainly include: functional search based on web search; community search based on post bars, vertical search for various regions and industries; and portal channel, IM, etc. The business type of Baidu Company is a limited liability company (natural person investment or holding). According to public information, it has two natural person shareholders to fund the company and take controlling interests.

Sogou Inc., ranked second in the industry, it has a market share of 6.6%. Sogou Inc. is China's leading Internet products and services provider such as Internet search, input method and browser. Since the birth of Sogou search in August 2004, it has developed into the second largest search engine in China after more than ten years. According to iResearch's data of December 2016, Sogou PC users reached 528 million. Sogou was originally a division of Sohu. In 2010, it was separated and began independent operation as a company instead of being a department of Sohu previously. Its company type is a limited liability company invested by one and single legal person (i.e. invested by Sogou Hong Kong Co., Ltd.). In 2013, Sogou obtained Tencent's strategic investment, merged with Tencent's Soso and other businesses, and became the only chaser and disruptor in the mobile search field.³⁹⁰⁶

360 Search ranks third in the Chinese search engine market and currently has a market share of 3.2%. 360 Search was launched by Qihoo 360 Technology Co. Ltd. in 2012. It belongs to the meta search engine category and helps users to select and utilize suitable engine/engines among multiple search engines through a unified user interface to implement retrieval operations. it is a global control mechanism for multiple retrieval tools distributed across the network.

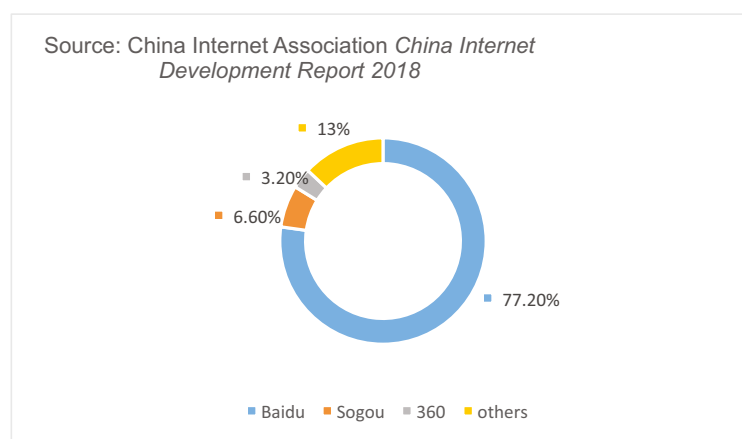


Figure 11 Market Structures of 2017 China Search Engines

15.1.6.3 The Concentration of Social Networking Platforms and their Ownership Profiles

As of June 2018, the top three social applications in China were WeChat moments, QQ (Qzone) and Weibo, all of which are comprehensive social applications. Among them,

³⁹⁰⁶ See Sogou's official website: <http://corp.sogou.com/introduction.html>, date of visit: February 2, 2019.

WeChat moments and Qzone are the social services derived from Tencent's instant messaging tools WeChat and QQ. Their usage rates are 86.9% and 64.7% respectively.³⁹⁰⁷ Judging from the number monthly active users of social applications, Tencent is China's number one social platform, and its market position in China can hardly be shaken. As of December 2017, monthly active users of Tencent's Weixin and WeChat were 987 million; and especially after the Spring Festival of 2018, the officially combined monthly active accounts of the two exceeded 1 billion.³⁹⁰⁸ Meanwhile, Tencent's another QQ had 783 million monthly active accounts, of which Qzone enjoyed 632 million monthly active accounts at the end of the first quarter of 2017. Most of the users currently using QQ space are young people under the age of 24, accounting for more than 40%. Female users accounted for a high proportion of 71.47%, even more active in the Qzone.³⁹⁰⁹

As a form of social media, benefiting from the influence of celebrities, superstars and media content ecology, as well as the vigorous development of short videos and mobile live broadcasts, the usage rate of Weibo continued to rise, reaching 42.1%. According to the *42nd Statistical Report on Internet Development in China*, in the first half of 2018, the number of Weibo users in China was 337 million, accounting for 42.1% of all netizens of China.³⁹¹⁰ The monthly active users of Weibo reached 411 million, making it the seventh social product with a global active user scale of over 400 million, with mobile terminals used accounting for 93%.³⁹¹¹ Some research institutions have conducted research and analysis on the structure of Weibo users, and found that young white-collar workers were the main group of Weibo users: young people under 30 years old exceeded 80%, users aged 18-30 approached 70% and users with higher education at or above the university level were always the main users of Weibo, accounting for 77.8%.³⁹¹²

15.1.6.4 The Concentration of Internet Advertisers and their Ownership Profile

According to iResearch's *Annual Monitoring Report on China Online Advertising Market 2018*,³⁹¹³ the online advertising market in China reached 375.01 billion yuan in 2017, a year-on-year increase of 32.9%, accounting for more than 50% of the Chinese advertising market. Online advertising is still the core business model of the Internet industry. In particular, mobile advertising has become a key point for growth. In 2017, China Mo-

3907 The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

3908 "Ten Pictures Walking You through Tencent's 2017 Financial Report to Know about its Capital and Flow Achievements", http://www.qianjia.com/html/2018-05/09_291111.html, visit date: February 12, 2019

3909 "QQ Space Active Users up to 4,095,150, Female Users Accounting for 71.47%", <http://www.askci.com/news/chanye/20170607/09354999811.shtml>, visit date: February 12, 2019.

3910 The data comes from the 42nd Statistical Report on Internet Development in China published by China Internet Network Information Center, http://www.cac.gov.cn/2018-08/20/c_1123296882.htm.

3911 Weibo 2017 Mobile Micro Report, <https://tech.sina.com.cn/mobile/n/n/2018-06-01/doc-ihcikcew0509508.shtml>, visit date: February 13, 2019.

3912 "Analysis of User Development in China's Weibo Industry in 2017", <http://www.chyxx.com/industry/201704/516131.html>, date of visit: February 13, 2019.

3913 "2018 China Online Advertising Market Annual Monitoring Report", <http://report.iresearch.cn/report/201808/3264.shtml>, date of visit: January 30, 2019.

bile's advertising scale reached 254.96 billion, accounting for nearly 70% of the total online advertising. Among various forms of online advertising, e-commerce advertisements (including vertical search advertisements and display advertisements) accounted for 29.8%, which was basically the same as in 2016. Typical enterprises in this area are Alibaba Group, Jingdong, and Qunar. Information flow advertisements (mainly including social media, news information, and information flow advertisements in video websites) accounted for more than 14%, and maintained rapid growth, main companies are Tencent's WeChat, Byte Dance's toutiao, etc.; search advertising (including search keyword advertising and alliance advertising) had a market size of about 93.7 billion yuan, accounting for 24.9%, mainly including Baidu search engine. In the leading Internet companies, the concentration of online advertising revenue has gradually increased. Alibaba Group, Baidu, Tencent and Byte Dance altogether account for 60% of the total online advertising revenue.

Alibaba Network Technology Co., Ltd. (abbreviated as Alibaba Group) was founded in Hangzhou, Zhejiang Province by 18 people including Ma Yun. Its business and related companies mainly include: Taobao, Tmall, Juhuasuan, AliExpress, Alibaba International Exchange Market, 1688, Alimama, AliCloud, Ant Financial, and Cainiao Network. On September 19, 2014, Alibaba Group was officially listed on the New York Stock Exchange. In December 2018, Alibaba was listed among global Top 500 brands in 2018. With the popular e-commerce website platforms such as Taobao, Tmall, and Juhuasuan, Alibaba's mobile users and merchants continue to grow, and marketing technology continues to improve. It has gradually dominated the digital advertising field in China. In 2017, Alibaba Group's advertising revenue exceeded 100 billion yuan, ranking first among Internet companies.³⁹¹⁴

Baidu's advertising revenue ranks second among Internet companies. As the world's largest Chinese search engine and the largest Chinese website, Baidu is one of the top ten Internet companies in the world, including streaming media, community forums, mobile assistants and other Internet fields. In the beginning, Baidu devoted itself to the development of search engines and opened up domestic market segments and finally its market share exceeded 70%. Since 2010, Baidu has gradually deployed streaming media, online travel, take-away food websites, mobile assistants and other segments, and also created a streaming media site, iQiyi. Advertising revenue sources of Baidu have accordingly expanded from search advertising to stream advertising.

Founded in 1998, Tencent is one of the largest integrated Internet service providers in China and one of the Internet companies with the most numbers of users in China. Tencent's diversified services include social and communication services "QQ" and WeChat, social networking platform "Qzone", Tencent Games' "QQ game platform", portal website "Tencent.com", Tencent news client and online video service "Tencent Video". According to Tencent's 2017 financial report, its operating income was 237.76 billion yuan and its net profit was 72.471 billion yuan. Tencent's online advertising business

3914 Annual Monitoring Report on China Online Advertising Market 2018, <http://report.iresearch.cn/report/201808/3264.shtml>, date of visit: January 30, 2019.

revenues were 40.439 billion yuan. Among them, media advertising revenue was 14.829 billion yuan, mainly arising from Tencent Video (video streaming service); and social and other advertising revenue increased to 25.16 billion yuan, mainly driven by the growth of advertising revenue generated by WeChat, other mobile applications and alliances advertising.

Beijing Byte Dance Technology Co., Ltd. was established in 2012. Its independently developed toutiao (meaning today's headline news) client and conducted deep data mining and user behavior analysis through massive information collection to recommend personalized information to users. In this way, Byte Dance created a brand new reading mode. In 2016, it launched many products one after another such as douyin, huoshan video, and xigua video, which made the company stand out quickly in short video applications. Strongly driven by two super-flow portals of toutiao and douyin, the total length of time spent on the company's products accounted for 10.1% of the time spent on all internet products in the first half of 2018 while the percentage was 3.9% in the first half of 2017. And in this regard, Byte Dances was ranked No. two, second only to Tencent whose products took the largest share. Internet advertising has also become an important source of its income, mainly in the form of information flow advertisements, open screen advertisements and detail page advertisements. Through the estimation of the results of these three forms of income, Evergrande Research Institute roughly estimated the revenues of the aforesaid three forms and forecasted that advertising revenue generated on toutiao and douyin apps would exceed 29 billion yuan and 18 billion yuan respectively in 2018.

15.1.6.5 the Concentration of Cloud Computing Platforms and their Ownership Profiles

At present, China's cloud computing market is in a stage of rapid development. The increasingly mature technologies such as containers and micro-services is driving the transformation of cloud computing, but there is still a gap with the scale of the global market. According to the statistics of the CAICT, the overall market size of China's cloud computing in 2016 reached 51.49 billion yuan, with an overall growth rate of 35.9%. In 2017, it grew to be 69.16 billion yuan. In terms of public cloud, service providers are dominated by large Internet companies and software companies such as Alibaba, Baidu and Tencent have got involved into the fields actively. In the private cloud, large enterprises including the telecommunications, energy, power, and pharmaceutical industries have begun to introduce cloud computing into the process of their internal information technology application. In China's 2018 cloud computing enterprise rankings, the top three companies leading the cloud computing market are Alibaba (Alibaba Cloud), China Telecom (eCloud) and Tencent (Tencent Cloud), and their leading edge is still expanding. In addition, top 10 companies also include: China Unicom (Wo Cloud), Huawei (Huawei Cloud), China Mobile (Mobile Cloud), Baidu (Baidu Cloud), Huayun (China Cloud), Inspur (Inspur Cloud), H3C (H3C Cloud).³⁹¹⁵ Except China Telecom, China Unicom and China

3915 "Top 50 of the Cloud Computing Enterprise Rankings in 2018", <http://top.askci.com/news/20181022/1756231134823>.

Mobile that are state-owned enterprises, all other cloud computing companies are domestic private companies.

According to the *Report on China Public Cloud IaaS Market Share Data of the First Half of 2018* released by International Data Corporation (IDC), Alibaba Cloud Computing Co. Ltd. had the largest market share in China, taking a share of 43%, with other competitors left far behind. Alibaba Cloud was formally established in September 2009. Based on the strong technical strength of Alibaba Group, the company independently developed a large-scale computing operating system “Apsara” and became the world’s first to provide 5K cloud computing services. The company now has been among top three cloud computing companies in the world. In the first half of the 2019 fiscal year, Alibaba Cloud’s revenue reached 10.37 billion yuan and maintained rapid growth. At present, 40% of China’s top 500 companies use Alibaba Cloud; about half of Chinese listed companies use Alibaba Cloud; 80% of the innovation and startup companies born in China use Alibaba Cloud every day.³⁹¹⁶

Tencent Cloud is a cloud computing brand built by Tencent to provide customers with cloud computing, big data, artificial intelligence services, and customized industry solutions, including cloud servers, cloud storage, cloud databases and elastic web engines. Tencent Cloud analysis (MTA), Tencent cloud push (pigeon) and other overall big data capabilities; as well as QQ interconnection, Qzone, micro-cloud, micro-community and other cloud-linked social systems. Tencent Cloud has a deep infrastructure and ample experience in massive Internet services. Whether it be social, gaming or other fields, it has many years of mature products that can deliver quality services. According to the global public cloud vendor rankings for the first quarter of 2018 released by the US market research firm Synergy Research Group, Alibaba Cloud was ranked second and Tencent fifth in the Asia Pacific region.³⁹¹⁷

China Telecom Cloud Computing Branch (eCloud) is a professional company under China Telecom, which integrates marketing, operation services and product research and development, and stays committed to becoming a leading provider delivering basic cloud computing services in Asia Pacific. In 2016, Tianyi Cloud, with its self-developed cloud platform and 5s security system as well as based on its SOE status and the Internet innovation mechanism, started to provide users with secure cloud services. And eCloud provides users with cloud hosting, cloud storage, cloud backup, desktop cloud, exclusive cloud, hybrid cloud, CDN, big data etc., as well as offers customized cloud solutions for the government, medical, education, finance and other industries. It is a cloud service provider favored by both government and corporate customers. According to the *Semi-annual Report of China’s Public Cloud Service Market* released by IDC, China Tele

shtml, date of visit: February 3, 2019.

3916 “IDC: Alibaba Cloud Owning the Largest Share of the Public Cloud Market of China, Equaling the combined market size of No. 2 to 9 Companies”, http://www.cankaoxiaoxi.com/finance/qyzx/20190121/2369508_2.shtml, date of visit: February 3, 2019.

3917 “China’s Public Cloud Market Reaching 26.48 Billion yuan in 2017 and 60% of Enterprises Choosing to See Prices”, <http://news.mydrivers.com/1/591/591329.htm>, visit date: February 13, 2019.

com (eCloud) ranked third with a market share of 7.6%, becoming one of the domestic manufacturers with the fastest growing public cloud business in 2017.

When it comes to the private cloud market, as markets such as government cloud, manufacturing and financial cloud become active (the three occupy market shares of more than 60%), and local governments work vigorously to implement cloud plans, a solid foundation is being made for the development of private cloud. According to the *Research Report on China Private Cloud Market Status and Development Trend 2017-2018*, five leading brands operating in the Chinese private cloud market are Huawei, H3C, VMware, Huayun and EasyStack, of which VMware is the only foreign company.³⁹¹⁸

15.2 The Institutional Framework of China's Digital Economy

WANG Xianlin & WU Peicheng

15.2.1. China's Digital Economy Development and Its Relationship with Competition Law

15.2.1.1 China's Digital Economy Development Process

The Chinese government attaches great importance to the development of the digital economy and proposes "to accelerate the development of the digital economy, promote the integration of the real economy and the digital economy, promote the deep integration of the Internet, big data, artificial intelligence and the real economy, continue to do a good job of informatization and industrialization, accelerate digital, intelligent and Internet-based development in manufacturing."

The development of China's digital economy can be divided into the following major periods:

Budding period (1994-2002): China officially joined the Internet in 1994. A large number of pioneering companies in the Internet industry were established, such as Sina, Sohu, and NetEase. The e-commerce platforms such as Alibaba and Jingdong also entered the initial stage. Search engines like Baidu and social networking sites such as Tencent are also evolving. In this stage, Chinese start-ups generally imitated foreign successful business models.

High-speed development period (2003-2012): Internet users in China continued to maintain double-digit growth during this period. In 2003, Alibaba launched Taobao.com, a personal e-commerce website, and developed into the world's largest C2C e-commerce platform. The Alipay business launched by Alibaba has gradually become the leader of third-party payment. In 2007, China issued the *Eleventh Five-Year Plan for E-Commerce Development*, which identified e-commerce services as an important emerging industry

³⁹¹⁸ "A List of Top 20 Latest Chinese Private Cloud Enterprises 2018", <https://baijiahao.baidu.com/s?id=1616922716727374581&wfr=spider&for=pc>, date of visit: February 13, 2019.

of the country. In 2005, Tencent QQ registered users over 100 million, and netizens were more deeply involved in instant messaging. By the end of 2012, the number of mobile Internet users in China reached 420 million, and the number of Internet users using mobile phones exceeded that of those using desktop computers for the first time. The development of China's digital economy entered a new stage.

Maturity period (2013-present): At the maturity stage, the digital economy has two characteristics: First, traditional industries are connected with the Internet. For example, you can hail a car or taxi through the "DiDi Chuxing" app, and order take-out online through "ele.me", "Meituan", etc. Second, Internet-based model innovations continue to emerge, for instance the rise of shared bicycles like Mobike.

In short, China's digital economy was mainly based on IT application and encouraging policies on e-commerce development in the early stage. In 2017, the term "digital economy" first appeared in the State Council's government work report. The State Council launched the *Guiding Opinions on Actively Propelling the Internet Plus Action Plan*, which aims to promote the development of the digital economy industry and encourage enterprises to "go out". At present, China has formed a relatively clear industrial development direction and development goals.³⁹¹⁹

15.2.1.2 China's Digital Economy Development Strategy

15.2.1.2.1 China's Strategy of Information Technology and E-commerce Development

The Chinese government has always attached importance to the development of the digital economy such as the Internet. In November 2005, China formulated the *State Informatization Development Strategy (2006-2020)*, which further clarified the focus of Internet development, and proposed to adjust the economic structure and transform the economic growth mode, and promote the national economy informatization, improve governance capability, the implement e-government, build a harmonious society, and promote IT application in society. In 2005, China's e-commerce was still in its infancy, and the General Office of the State Council of China issued the *Several Opinions on Accelerating the Development of E-Commerce*. These opinions pointed out that e-commerce plays an important role in national economic and social development. The document proposed to improve the environment of policies and regulations to standardize the development of e-commerce and accelerate the development of credit, certification, standards, payment and modern logistics so as to form a system of supporting e-commerce. It is designed to give full play to the role of enterprises to advance the application of e-commerce. Additionally, it is committed to enhancing the level of e-commerce technology and services in order to promote the development of related industries and strengthen exchanges and cooperation in international competition.

³⁹¹⁹ See the website of the news of Communist Party of China <http://theory.people.com.cn/n1/2018/0816/c40531-30232681.html>, last access date February 1, 2019.

15.2.1.2.2 China's "Internet Plus" Action

Nearly ten years later, in 2015, the Chinese government proposed a programmatic document for the industrial development of the Internet sector. The State Council pointed out in the *Guiding Opinions on Actively Propelling Internet Plus Actions Plan (Guo Fa [2015] No. 40)* that "Internet Plus" is to integrate the innovation achievements of the Internet with various fields of economic and social development, promote technological progress and efficiency and organizational change, enhance the innovation and productivity of the real economy, and form a new form of economic and social development with the Internet-based infrastructure and innovation elements. The strategic document of the State Council clarified that by 2018, the development of China's Internet and its integration with economic and social fields would be further deepened, and network economy and the real economy would enjoy synergistic development; and by 2025, the "Internet Plus" industrial ecosystem of synergy featuring enhanced network capabilities, intelligence, and services will be basically formed, and "Internet Plus" will become an important driving force for economic and social innovation and development. On this basis, the State Council proposed 11 key actions: "Internet Plus" entrepreneurship and innovation, collaborative manufacturing, modern agriculture, smart energy, inclusive finance, public-benefiting services, efficient logistics, e-commerce, convenient transportation, green ecology and artificial intelligence. Afterwards, the Chinese government successively introduced policies and measures to ensure that the "Internet Plus" key actions could take root in various fields, for instance, the State Council issued the *Guiding Opinions on Accelerating the Work of 'Internet + Government Services'* in September 2016 and the *"Guiding Opinions on Deepening 'the Internet + Advanced Manufacturing Industry for the Development of the Industrial Internet'"* in November 2017; and the Ministry of Industry and Information Technology issued the *Guiding Opinions on Implementing the State Council's Plan for Actively Propelling the Internet Plus Action Plan* in 2015. All these documents adopted specific measures to facilitate the implementation of the "Internet Plus" work. Especially in the financial sector, Internet finance has gradually become an emerging field of China's economic development. In July 2015, the People's Bank of China (PBOC) and other departments jointly issued the *Guiding Opinions on Promoting the Sound Development of Internet Finance*, proposing to encourage innovation, support the steady development of Internet finance, clarify the responsibility of Internet financial supervision, and regulate the Internet financial market order, so as to further promote financial reform and innovation and open wider to the outside world.

15.2.1.2.3 China's Big Data Development Strategy

The Chinese government also attaches importance to the development of big data. In August 2015, the State Council of China issued the *Notice on Printing and Distributing the Action Plan for Promoting Big Data Development*, which officially established the national strategy for the development of big data (to become a major data country). The Notice points out that big data is a data set characterized by Volume, Variety, Velocity, and Value (4V). The data of various forms and scattered sources can be collected, stored

and analyzed on a correlation basis. Big data is evolving into a new generation of information technology and service format that can discover new knowledge, create new value, and enhance new capabilities. The notice proposes 10 big data projects: government data sharing project, the project of coordinated national data development, e-government big data project, data-enabled public service project, industrial and emerging industry big data project, modern agricultural big data project, data-driven public innovation project, project of key big data technologies and product R & D and industrialization, project of enhancing big data support for other industries, as well as network and big data security project. In order to promote the application of big data in specific industries, China has formulated the *Big Data Industry Development Plan (2016-2020)*. The *Development Plan* further points out that big data has become one of the strategic shapers of the country's competitiveness and is accelerating the transformation of the information industry.

It can be seen that the Chinese government attaches great importance to the development of the digital economy and formulated corresponding strategic documents in the fields of e-commerce, the Internet, big data, artificial intelligence and other aspects, and integrated the digital economic development into the China's overall reform and opening up. In the past 20 years, the Internet has been deeply integrated and with China's industrial development plan and people's lifestyle. The rapid development of China's Internet has benefited from China's reform and opening up policy, sustained economic development and international advanced technology and experience. The development of China's Internet has greatly promoted the development of China's science and technology, economy, politics, society and culture, as well as the progress of China's social civilization and the improvement of people's living standards. The Chinese government will continue to promote the development of the Internet and encourage the use of new technologies to provide new services to meet the growing diverse needs of people.³⁹²⁰

15.2.1.3 China's Digital Economy Strategy and its Relationship with Competition Policy

15.2.1.3.1 China's Digital Economic Policy and Competition Policy

China's digital economic policy, in a way, is also a kind of industrial development policy, and it has a close relationship with competition policy. China has established the basic position of competition policy and clearly stated that "enhance the basic position of competition policy and create an institutional environment for fair competition."³⁹²¹ Accordingly, the government has introduced a series of policies, laws and regulations concerning coordination between China's digital economy strategy and competition policy. In recent years, the central government and local governments at all levels of China have implemented a fair competition review system. In 2016, the State Council issued

³⁹²⁰ See "Announcement of China's Internet Status", the State Council Information Office announced on June 8, 2010.

³⁹²¹ See Qiushi.com, see http://www.qstheory.cn/yaowen/2018-12/21/c_1123887866.htm, last access date February 1, 2019.

the *Opinions on Establishing a Fair Competition Review System in the Construction of the Market System* and the National Development and Reform Commission and other three departments jointly issued the *Implementation Rules on the Fair Competition Review System (Provisional)*. According to the fair competition review system, the impact of policies on competition will be assessed during the policy-making process, and digital economic policies that have not been evaluated or evaluated having a serious impact on competition cannot be introduced.

15.2.1.3.2 The Role of Anti-monopoly Law Enforcement Agencies in the Digital Economy Strategy

From an empirical point of view, it is usually high-level departments that are responsible for formulating digital economic policies in China. Many digital economic development strategies are directly carried out by the CPC Central Committee and the State Council. In the policy formulation process, opinions and suggestions including those of Anti-monopoly Law enforcement agencies are usually heard. Especially given China has established the fundamental status of competition policy, the specific digital economic strategy formulation department will usually seek the opinions of Anti-monopoly Law enforcement agencies to assess the impact of industrial policies on the competitive environment. Thus, Anti-monopoly Law enforcement agencies are playing a growing role in the formulation of digital economic strategy.

In addition, according to the provisions of China's *Anti-monopoly Law*, Anti-monopoly Law enforcement agencies may propose to the relevant higher authorities to deal with administrative subjects who abuse administrative power to eliminate or restrict competition. Therefore, for digital economic strategic documents that might exclude and restrict competition during the implementation process, Anti-monopoly Law enforcement agencies may make recommendations to the policy-making organs and their higher-level organs in accordance with the provisions of the *Anti-monopoly Law*. In practice, Anti-monopoly Law enforcement agencies will also supervise and guide through issuing letters to the policy-making organs.

15.2.2. Digital Property Protection in the Perspective of Chinese Law

15.2.2.1 Intellectual Property Issues in the Digital Economy

There are intellectual property rights involved in the development of China's digital economy. They are mainly reflected as follows from the Chinese law perspective:

15.2.2.1.1 Intellectual Property and Big Data

Some people believe that big data is a new form of intellectual property. The object of intellectual property protection is information that contains human creativity and

has certain value.³⁹²² Therefore, the object of intellectual property is in fact information, that is, “intellectual information is the content, and knowledge is only the form.”³⁹²³ The electronic data as an external form of big data is the expression of information and represents the form of the object of intellectual property and it can vividly explain why big data can become the logical source of a new state of intellectual property rights.³⁹²⁴ The Chinese jurisprudence adopts the classification criteria of “native data” and “derived data” for big data. The former refers to data generated through legal collection, recording, and storage means, and the latter refers to systematic, readable data that is formed by cleaning, desensitization, anonymity, processing, calculation, polymerization, etc. through the use of algorithms for specific purposes.³⁹²⁵ It is generally accepted in the legal theory that the object of big data under the Chinese law perspective refers to “derived data”. For example, after the implementation of the *General Provisions of the Civil Law*, the official interpretation of the *General Provisions of the Civil Law* holds that Article 127 of the Rules does not involve the statistical and non-identifiable data of personal information, since collection, processing and use of the data are conducted after encryption of the original data on the basis of protecting the privacy and information rights of natural persons.³⁹²⁶ Some argue that “derived data” meets the requirements of intellectual property objects, and relevant intellectual property rights should be provided for them. And they can be called “data rights” according to the traditional naming logic of intellectual property rights, i.e., civil subjects can enjoy, based on derivative data, these dominant intangible property rights, which can specifically include rights of marking, storage, use, modification, protecting data integrity, reproduction, and earnings. At the same time, national security, public interest, and the interests of others cannot be endangered when data rights are exercised. The rights is fully characterized by the intangible and proprietary nature of traditional intellectual property.³⁹²⁷

15.2.2.1.2 Intellectual Property Issues in the Field of Artificial Intelligence

In 2017, artificial intelligence was first included in the work report of the State Council of China. The report of the 19th National Congress of the Communist Party of China proposed: “China is going to accelerate the construction of a manufacturing power, speed up the development of advanced manufacturing, and promote the in-depth integration of the Internet, big data and artificial intelligence with the real economy.” As of April 2017, Baidu had published more than 2,000 Chinese patent applications and hundreds

3922 See Zhang Yumin: *Intellectual Property Law*, Law Press, 2011, p. 12.

3923 Xu Wei: “The Legitimacy of Intellectual Property: On the Consideration and Balance in Intellectual Property Law”, in *China Social Science*, No. 4, 2003.

3924 Wang Guangzhen: “Analysis of the Legal Nature of Big Data”, in *Journal of Chongqing University of Posts and Telecommunications (Social Science Edition)*, No. 4, 2017.

3925 See Yang Lixin and Chen Xiaojang: “Derivative Data is the Object of Data Exclusive Rights”, in *Journal of Chinese Social Sciences*, July 13, 2016, 5th edition.

3926 See Shen Deyong: “General Provisions and Application of the Civil Law of the People’s Republic of China” (below), *People’s Court Press*, 2017 edition, p. 869.

3927 See Chen Junhua: “Research on Data Rights in Data Open Sharing in the Big Data Era”, in *Book & Information*, No. 4, 2018.

of foreign patent applications in artificial intelligence. The technical content involves speech recognition, image recognition, natural language understanding, user portraits, automated driving, deep learning, and cloud computing. Artificial intelligence is a science and technology on the theory, methods, techniques and application systems of simulating, extending and enhancing human intelligence. Its research fields mainly include machine learning, natural language processing, images processing and human-computer interaction. Artificial intelligence has brought certain impacts on the intellectual property system, mainly including the following aspects:

The first issue is about the subject qualification of intelligent robots. In favor of giving intelligent robots a legal personality, the artificial intelligence of the future world will appear more as a “humanoid subject”, that is, anthropomorphic objects that can express human uniqueness. Since a legal person can be drafted as a person with rational thinking, a robot artificially made by human intelligence can also become a civil subject. The opposing view is that no matter how the robot assumes responsibility, the ultimate responsibility bearer is humans, which makes the “legal personality” of artificial intelligence redundant.

The second issue is about the nature of artificial intelligence products as an intellectual property object. There is a view in the field of intellectual property law in China that there are three aspects of artificial intelligence products that are not “patentable”: first, inventions that are contrary to public order, such as “killer robots” as criminal tools should be prohibited. Second, inventions that are not technical solutions, such as rules and methods of intellectual activities, and diagnosis and treatment of diseases; third, inventions in some specific technical fields, mainly referring to some inventions with unpredictability or potential irreversibility, such as artificial intelligence techniques with “machine bias” and “black box” algorithms. In addition, there is a corresponding problem of the copyrightability of the artificial intelligence product and its ownership.

Finally, there are a lot of works to do in integrating standards of artificial intelligence. The artificial intelligence technology and related products are developing rapidly. It is still difficult to reach a consensus on the concept, connotation, application modes and intelligence level of the industry. With a weak foundation of standardization work and multiple generic technology fields of the artificial intelligence, involving different technical committees of standardization, it is imperative to strengthen the top-level design to avoid repetitive, overlapping work.³⁹²⁸

15.2.2.1.3 Other Intellectual Property Issues

The intellectual property issues in the digital economy era are complicated. In addition to new things that directly impact the intellectual property system, the difficulty of applying laws due to the characteristics of the digital economy is also worthy of attention. For example, in China, where e-commerce is booming, online shopping has become an important channel for residents’ daily consumption. The cross-regional nature of online

³⁹²⁸ See Wu Handong et al., “The Challenge of Artificial Intelligence to the Legal Protection of Intellectual Property Rights”, in Chinese Law Review, No. 2, 2018.

shopping has led to many problems in the jurisdiction of the courts in intellectual property infringement cases. China is still exploring the legal governance process related to intellectual property rights in the era of digital economy.

15.2.2.2 Propertization of Industrial Data and Algorithms

The protection of industrial data and algorithms is strongly related to intellectual property and competition law. For example, a large data set that can constitute a compilation work can be protected by copyright law; a big data computing program with distinctive technical attributes and that can solve certain technical problems can be protected by patent law; and the internal industrial data and information before being put into circulation can be protected as trade secrets under *the Law against unfair competition*. Judging from China's judicial practice, right holders are more inclined to seek the protection according to *the Law against unfair competition* in litigation cases involving industrial data. For example, in both cases of "*Sina Weibo v. Maimai*(in which the plaintiff claims the defendant uses its users' information)"³⁹²⁹ and "*Dianping.com v. Baidu* (in which the plaintiff claims the defendant is engaged in unfair competition)"³⁹³⁰ the courts referred to *the Law against Unfair Competition* to protect industrial data.

The current Chinese intellectual property law protects industrial data with certain limitations, mainly because of more stringent protection conditions of intellectual property laws such as copyright law and patent law. For example, if the industrial data is to be protected by the copyright law, the premise is that the industrial data should be a work, and the work must be original. The Berne Convention stipulates that works protected by copyright law are the result of the author's intellectual creation. Therefore, this issue is not only a problem faced by China, but by other countries as well. The special feature of industrial data is that it is difficult for the original data (unprocessed) to meet originality requirements. For example, in the "*Dianping.com v. Aibang.com*" Case³⁹³¹ ruled by the Beijing People's Court, the court held that the arrangement of netizens' comments network in time order does not possess originality and a collection of such comments does not constitute a compilation of works.

China's *Patent Law* can also protect big data computing programs with distinct technical attributes and that can solve certain technical problems. China's *Guidelines for Patent Examination* also contains invention patent regulations on computing programs: A computing programs refers to a solution that controls or processes external and internal objects of the computers to solve the invention challenges, based on the computer program process in whole or in part, by relying on the the execution of the computer program developed according to the aforesaid process. If a patent requirement only involves an algorithm or mathematical calculation rule or the computer program itself, or the rules and methods of the game, then the claim is only a rule and method of intellectual activity; consequently, it is not an object of patent protection. Usually it is hard

3929 Beijing Intellectual Property Court (2016) Beijing 73 Minzhong No. 588 Civil Judgment

3930 Shanghai Intellectual Property Court (2016) Shanghai 73 Minzhong No.242 Civil Judgment

3931 Beijing No. 1 Intermediate People's Court (2009) Yizhong Minzhong No. 5031.

for big data to obtain patentability. Therefore, in practice, enterprises often refer to trade secrets in the *Law against Unfair Competition* to protect their industrial data. For example, in the case of “*Quzhou Wanlian Network Technology Co., Ltd. v. Zhou Huimin for infringements of trade secrets*”³⁹³², the Shanghai court held that user information database registered in the website can be protected as trade secrets. However, this protection also has its drawbacks, because it encourages the malicious data hiding of enterprises and may cause monopoly risks.³⁹³³

In summary, some scholars in China believe that a new path should be taken for the protection of industrial data and algorithms, that is, the establishment of new data property rights of enterprises, to create a direct protection basis for industrial data to possess exclusive rights, and new legal protection.³⁹³⁴ In judicial practice, there are already courts that consciously and indirectly recognized the property rights of industrial data. For example, in the case of “*Sina Weibo v. Maimai*” in the above-mentioned Beijing Intellectual Property Court, some believe that the court actually identified property rights (in the sense of competition law) in industrial data. The court confirmed the following point: enterprises that have invested their efforts and resources in data collection can enjoy protection of their data under competition law and others may not capture and use the data without permission or authorization..³⁹³⁵ This shows that, given the influence of intellectual property strict legalism under the existing Chinese legal system, only when industrial data or algorithms meet rather stringent conditions can they constitute objects of copyright or patent protection. In practice, enterprises tend to refer to trade secrets or general clauses of the *Law against Unfair Competition* to be protected. Yet, there are limitations to the protection of the *Law against Unfair Competition* and now Chinese courts have begun to explore a reasonable explanation of the property interests of industrial data and algorithms in accordance with competition law.

15.2.2.3 Propertilization of Personal Data and Protection of Personal Information

In recent years, the Chinese government and the public have become more aware of the importance of the protection of personal information, and this trend is also reflected in legislation and legal theory. For example, in the “SF Express/Cainiao Battle” that took place in June 2017, Cainiao Company, a subsidiary of the e-commerce giant Alibaba, and a leading Chinese express delivery enterprise SF Express closed their interoperable data interfaces, which led to a short-term obstacle to e-commerce circulation. Although the incident ended in the administrative intervention of the State Post Bureau, the fact that the companies are mastering citizens’ personal information is worthy of our reflections.³⁹³⁶

3932 Shanghai Higher People’s Court (2011) Shanghai Gaomin III (zhi) Zhong No. 100.

3933 See Xu Shi, “Intellectual Property Paths and Breakthroughs in Enterprise Data Protection,” in *Eastern Law*, No. 5, 2018.

3934 See Long Weiqiu: “Data New Property Rights Establishment and System Research”, in the *Political and Legal Forum*, No. 4, 2017.

3935 See <https://www.kwm.com/en/knowledge/insights/summary-of-all-the-disputes-related-in-data-throughout-the-year-of-2017-20180321>, last access date February 2, 2019.

3936 See Xia Jinyu: “The “Cainiao / SF Express” Case Calls for the Construction of Cross-Industry Rules,” *China Economic*

Some people believe that according to the relevant provisions of China's *Cybersecurity Law*, the relationship between network data and personal information is as follows: "data" emphasizes the form while "information" emphasizes the content.³⁹³⁷ China is currently in the process of compiling the *Civil Code*. Article 111 of the current *General Provisions of the Civil Law*, which was first formulated, states: "The personal information of natural persons is protected by law. Any organization or individual who needs to obtain personal information of others shall obtain information and ensure information security according to law. No personal information may be illegally collected, used, processed or transmitted, and personal information may not be illegally bought, sold, or disclosed." "To meet the needs of the development of the Internet and the era of big data,"³⁹³⁸ the *General Provisions of the Civil Law* stipulates in Article 127: "The laws where there are provisions for the protection of data and network virtual property shall be applicable."

Regarding the nature of personal information rights, the Chinese legal community has not reached a consensus. Most scholars believe that the so-called personal information right belongs to the right to privacy or personality.³⁹³⁹ Information in the network environment is the form of the existence of natural persons, and related information can represent natural persons. Despite this, the Chinese jurisprudence generally recognizes that personal information contains the content of property rights. For example, some scholars regard personal information as the object of new personality rights from the perspectives of personality rights and property rights.³⁹⁴⁰ Personal information property rights are a new type of property right that the subject controls the commercial value of its personal information.³⁹⁴¹ Therefore, China's *General Provisions of the Civil Law* has been in a state of ambiguity on whether to directly stipulate the right to personal information. Legislators only define personal information as an interest in personality, and although they mention the protection of personal information in the section of "civil rights", they fail to clearly define the content and nature of personal information rights.³⁹⁴² Despite this, the property value of citizens' personal information is already a factual state. Just as Professor Wang Zejian, a well-known law scholar in Taiwan, China, pointed out that some personality rights have entered the market and there is a large amount of commercialization, and thus certain economic benefits have been attached to the rights. In this case, the right of personality shares the nature of property rights

Times, June 5, 2017, 6th Edition.

3937 China's "Information Security Technology – Personal Information Protection Guidelines" (GB/Z 28828-2012) 3.2 stipulates: "Personal information, related to a specific natural person, refers to computer edata that can be processed by the information system and can be used independently or together with other information to identify that specific natural person."

3938 Li Jianguo: "Notes on the General Provision of the Civil Law of the People's Republic of China (Draft) – at the Fifth Session of the Twelfth National People's Congress on March 8, 2017, in the People's Daily, March 9, 2017 Day, 5th edition.

3939 See Tan Jianchu, Li Zhenghui: "On the Right to Privacy in the Internet: focusing on a Case", in Hebei Law, No. 2, 2001.

3940 See Qi Aimin: Information in the Perspective of Private Law, Chongqing University Press, 2012, pp. 1-5.

3941 See Liu Deliang, "Protection of Property Rights of Personal Information", in Law Research, No. 3, 2007.

3942 See Ren Danli: "The Rights' Structure on Personal Information from the Perspective of the "Cainiao/SF Express Case", in Politics and Law, No. 6 of 2018.

and the assignment and authorization of specific personal interests are involved...”³⁹⁴³ From the perspective of legislation, the “National People’s Congress Standing Committee’s Decision on Strengthening Network Information Protection” states: “No organization or individual may steal or otherwise obtain citizen’s personal electronic information, sell or illegally provide to others citizens’ personal electronic information.” This is sufficient to illustrate the value attribute of citizens’ personal information.

In China’s legislation, the legal attributes of big data itself are not clear. Some scholars believe that the data in the era of big data should be assets. The roadmap of big data assets shows that data is defined, desensitized, described, accumulated, and then kept in the recording medium of the controlling person, and finally converted into a transaction target with exchange value.³⁹⁴⁴ The academic community’s identification of the nature of virtual property such as data as the objects, intellectual creation, debt, etc.. Some scholars believe that big data involving citizens’ personal information has strong personality attributes.³⁹⁴⁵ Other scholars argue that big data is the network information retained by non-specific online population, so its personality attributes become weaker, and its attributes as compilation works get stronger.³⁹⁴⁶ As mentioned above, some argued that big data is the object of information property law protection. It is precisely because a consensus has not been reached on the legal nature of big data in China, there is disagreement as to what laws or regulations apply to issues including the distribution of data rights. Chinese courts have made certain attempts on this issue. For example, in *Taobao v. Meijing* concerning the unfair competition over big data products, so called the first case involving big data rights confirmation in China, the Hangzhou Internet Court, based on *the Law against Unfair Competition*, created some new developments, i.e., it took a step forward in recognizing the new property rights of the data product subject. The court created a definition of “competitive property rights” for the data products involved, which was unprecedented. In providing legal basis, the Court not only offered the general argument from the perspective of opposing unfair competition, but emphasized the defendant occupied and profited from others’ fruits of labor, constituting the “reaping without sowing”, since the plaintiff had invested human, material and financial resources to form the data products after long-term business operation. If the defendant’s behavior was not stopped, the creative enthusiasm of big data product developers would be hindered and the development of the big data industry would be affected.³⁹⁴⁷ The case is still in the appeal process.

3943 See Wang Zejian, “The Law of Personality Rights: Legal Interpretation, Comparative Law, Case Studies”, Peking University Press, 2013 edition, p. 134.

3944 Wang Yulin, Gao Fuping: “Research on Property Attributes of Big Data”, in *Books and Intelligence*, No. 1, 2016.

3945 See Yang Yongkai, “Legal Governance of Internet Big Data”, in *Journal of Shihezi University (Philosophy and Social Sciences)*, No. 2, 2018.

3946 See Tu Yanhui, “Research on the Legal Confirmation of Big Data-related Rights”, in *Journal of Foshan University (Social Science Edition)*, No. 5, 2016.

3947 See China Court Network <https://www.chinacourt.org/index.php/article/detail/2019/01/id/3707258.shtml>, last access date February 1, 2019.

In summary, in the Chinese law perspective, consensus has not reached on the theory of big data and citizen personal information protection, which is also the inevitable result of the theorization of emerging fields. In general, there are general provisions in the civil law on the protection of citizens' personal information, and there will be more detailed provisions in the section of personality rights under civil law in the future. For big data protection, because of its more ambiguous legal nature, the judicial practice community tends to apply *The Law against Unfair Competition* to provide ultimate protection when no protection can be sought elsewhere so as to avoid theoretical differences on its nature. Given this situation, there has been a gradual emergence of judicial authorities to explore the possible paths of property rights protection for data.

15.2.2.4 The Regulatory System Involving Digital Property

As mentioned above, no consensus has been reached on the legal nature of digital assets in China such as industrial data, personal information, and artificial intelligence products. Despite this, digital property, as well as other property, belong to privately owned property and they are equally protected in China. Digital property rights holders may protect their property rights and interests in accordance with the provisions of the *Property Law*, the *Intellectual Property Law*, the *Law against Unfair Competition*, the *Tort Liability Law*, etc. depending on the nature of their different properties. The Chinese government protects private property rights in accordance with law, but does not directly regulate private property including digital property. Only when conducts harming public or national interests occur, for instance, abusing digital property or infringing on consumer interests and personal information, the relevant Chinese authorities will intervene as necessary. The details will be described in the following sections.

15.2.3. Digital Economy Management System in the Perspective of Chinese Law

15.2.3.1 The Regulatory System of the Telecommunications Industry

As early as in 1993, the State Council of China issued the *Examination of the State Council of the Notice of the Ministry of Posts and Telecommunications on Strengthening the Management of the Telecommunications Business* to beef up supervision of the telecommunications industry. The State Council enacted the *Regulations on Telecommunications of the People's Republic of China* in 2000, revised most recently in 2016, which established the basic regulatory system and industry norms for the telecommunications industry in China. According to the Regulations, telecommunications under Chinese law refers to the use of wired or wireless electromagnetic systems or optoelectronic systems to transmit or receive voice, text, data, images and any other form of information. China's telecommunications business investment has also gradually opened up from the total ban on foreign investment to allow foreign investment operations. The State Council also formulated the *Regulations on the Administration of Foreign-invested Telecommunica-*

tions Enterprises to specify the implementation methods of foreign-invested telecommunications enterprises.

15.2.3.1.1 Telecommunications Regulation Authority

According to Article 3 of the *Regulations on Telecommunications*, “The competent department of the State Council for Information Industry shall supervise and manage the national telecommunications industry in accordance with the provisions of these Regulations. The telecommunications regulatory agencies of the provinces, autonomous regions and municipalities shall, under the leadership of the competent department of the information industry of the State Council, supervise and regulate the telecommunications industry within their administrative region.”

China has established the Ministry of Industry and Information Technology at the central level as the regulatory authority for the national telecommunications industry. According to the *Notice of the Central Government on the Responsibilities and Institutional Adjustments of the Ministry of Industry and Information Technology*, the Ministry is committed to the following duties: facilitating the construction of a major network power and promote the broadband development; managing the Internet industry (including the mobile Internet); coordinating the integrated development of the telecommunications, the Internet and the dedicated communication network to promote the sharing of network resources; organizing safety evaluation of new technology and emerging business, strengthening access management of the communication industry, drafting relevant policies and organize their implementation; and guiding the self-discipline of related industries such as telecommunications and Internet-related industries and the development of relevant industrial organizations. The MIIT also takes up the following responsibilities: building networks and information security systems in the field of communications; formulating networks and information security plans, policies and standards for telecommunication networks, Internet and industrial control systems, and organizing their implementation and strengthening the security review of telecommunication networks, the Internet and industrial control systems; developing security management policies, norms and standards for telecommunication networks and Internet data, and organizing their implementation; as well as ensuring network security and emergency management and disposal.

The Ministry of Industry and Information Technology established the Information and Communication Administration. Its main functions are as follows: supervising information and communication services such as telecommunications and the Internet, and regulating the whole Internet industry; formulating policies and standards on market access and regulation and organizing their implementation; promoting the integration of the telecommunications, broadcasting and computer networks; overseeing market order, equipment access, service quality, user rights and personal information protection; guiding industrial self-discipline and the development of industrial organizations in the telecommunications and Internet-related sectors; conducting basic management and international coordination of communication network code number, Internet do-

main name and IP address, website filing and access service; managing the mobile internet and intelligent terminals; developing policies of data collection, transmission, storage and use to standardize information communication service market; formulating policies of network architecture and operation management and interconnection and settlement and supervision their implementation; managing the work of the National Communications Exit and Exit Bureau; as well as undertaking the construction and management of the communications emergency system, coordinating national emergency communications and important communications guarantees and undertaking the mobilization of defense communications information and combat readiness.³⁹⁴⁸

In 2018, the *Plan of the Central Committee of the Communist Party of China for the Reform of the Party and State Institutions* further clarified the duties of the Ministry of Industry and Information Technology by stating “the MIIT is responsible for coordinating the construction of telecommunications networks, the Internet, and dedicated communication networks; organizing and guiding technological innovation and progress in the communications industry as well as guaranteeing the infrastructure construction and technological innovation of the National Computer Network and Information Security Management Center.” All provincial-level units in China have established their Communications Administration as the regulatory body for local telecommunications.

15.2.3.1.2 Telecommunications Licensing System

According to the *Regulations on the Telecommunications*, the licensing system is implemented in the operation of telecommunications business in China. An entity must obtain a telecommunications business license issued by the competent department of the information industry under the State Council or the telecommunications regulatory agencies of the provinces, autonomous regions, and municipalities concerned to engage in the business operation. Otherwise, no organization or individual may carry out telecommunications business in the country. China’s telecommunications business is divided into basic telecommunication services and value-added telecommunication services. Basic telecommunication services refer to services that provide public network infrastructure, public data transmission and basic voice communication services. Value-added telecommunications services refer to telecommunications and information services provided by public network infrastructure. The following is the specific information:

Basic telecommunications services:

- (I) fixed domestic long-distance and local telephone services;
- (ii) mobile Internet telephony and data services;
- (iii) satellite communications and satellite mobile communications services;

³⁹⁴⁸ See the Notice of the Central Government on the Responsibilities and Institutional Adjustments of the Ministry of Industry and Information Technology <http://news.163.com/16/0310/12/BHQ2BF7N00014SEH.html>, last access date February 2, 2019.

- (iv) the Internet and other public data transmission services;
- (v) lease and sale of bandwidth, wavelength, optical fiber, optical cable, pipeline and other network elements;
- (vi) network loading, access and network outsourcing services;
- (vii) International communications infrastructure and international telecommunications services;
- (viii) radio paging service;
- (ix) resale of basic telecommunications services.

The business of items (viii) and (ix) is based on the management of value-added telecommunications services.

Value-added telecommunications services:

- (i) E-mail;
- (ii) voicemail;
- (iii) online information bank storage and retrieval;
- (iv) electronic data interchanges
- (v) online data processing and transaction processing;
- (vi) value-added fax;
- (vii) the Internet access services;
- (viii) the Internet information services;
- (ix) video conference call service.

15.2.3.1.3 Internet Regulation

In addition, the Chinese government has separately established the State Internet Information Office to supervise the Internet industry. The *Notice of the State Council on Authorizing the State Internet Information Office to Manage Internet Information* clearly states that the State Council's newly established State Internet Information Office which is responsible for the management of Internet information throughout the country and supervising and managing the law enforcement in this field. The State Internet Information Office has successively issued a series of regulations and management documents to promote the sound development of China's Internet industry, which include: *Management Regulations on Internet Posting Review Services, Management Regulations on Internet Forum Community Services, Management Regulations on Internet Group Information Services, Management Regulations on Internet News-based Information Services, License Management Implementation Rules on Internet News-based Information Services, Manage-*

ment Measures on Internet Information Services, Management Regulations on Internet User Public Account Information Service and Management Regulations on Block Chain Information Services. In 2016, the Chinese government enacted the *Cybersecurity Law* to ensure Internet security. According to the law, the national Internet regulator is responsible for coordinating network security work and related supervision. The competent telecommunications authority of the State Council, the public security department and other relevant organs shall be responsible for network security protection, supervision and management within the remits of their respective duties in accordance with the provisions of this Law, other relevant laws and administrative regulations.

At present, China is considering enacting the *Telecommunications Law* with a higher legal rank. According to relevant reports, the *Telecommunications Law* has been included in the legislative plan of the 13th National People's Congress Standing Committee.³⁹⁴⁹

15.2.3.2 Industry Regulation of Big Data

China has not established an independent big data management department at the level of the Central Government. The development of relevant big data industries is coordinated by the Ministry of Industry and Information Technology. For example, in 2016, the Ministry of Industry and Information Technology issued the *Big Data Industry Development Plan (2016-2020)* (the MIIT [2016] No. 412) to ensure the smooth development of the Chinese data industry.

Nevertheless, in the process of China's institutional reform in 2018, Chinese local governments have successively set up dedicated big data management departments to facilitate the application and development of big data. According to incomplete statistics, 12 provinces of Guangdong Province, Zhejiang Province, Shandong Province, Guizhou Province, Fujian Province, Guangxi Zhuang Autonomous Region, Jilin Province, Henan Province, Jiangxi Province, Inner Mongolia Autonomous Region, Chongqing Municipality and Shanghai Municipality have set up their provincial-level big data management department. The names of big data management departments in different regions are not consistent. For example, it is called "Big Data Development Administration" in Guizhou Province, "Big Data Administration" in Fujian Province, "Big Data Bureau" in Shandong Province, "Government Service and Digital Construction Administration" in Jilin Province, "Big Data Center" in Shanghai, and "Big Data Application and Development Administration" in Chongqing.³⁹⁵⁰ The local governments of China are currently implementing the "go there one time at most and get your business handled (indicating government service efficiency to be greatly enhanced)" reform. Take Zhejiang Province for example, Zhejiang is committed to creating an upgraded version of the "go to a functionary once at most and get your business handled" reform. Shifting from the "get your business handled at one functional window and enjoy integrated services" pilot program, to "one-

3949 See an Expert Seminar on the Telecommunications Law Legislation Organized by the Policy and Regulations Division, see <http://www.miit.gov.cn/n1146285/n1146352/n3054355/n3057254/n3057260/c6617041/content.html>, last visit date: 2019 February 2nd.

3950 See <http://www.echinagov.com/news/244106.htm>, last visit date: February 2, 2019.

stop service”, and then to “get your business handled with just one card” and “get your business handled at just one website”, Zhejiang has formed a strong momentum of the reform. Zhejiang improves the “Internet + government service” level, and thoroughly promotes the full-process government service online. It is the first province to build “digital government”, “online government” and “handheld government”, and ensure citizens just have to “go to a nearby functionary once” or even “just log on a dedicated website” to get more types of business handled.³⁹⁵¹ For local governments, once the data can be fully interconnected, 99% of all public services currently provided by the government can be processed online. “Go to a functionary once at most and get your business handled” will be evolved into “go to a functionary once in a lifetime”, and even “never need go to a functionary” for some services. In this sense, not only will smart government services will be delivered, they will also save plenty of manpower and resources.³⁹⁵²

In addition, China has begun to have separate local legislation on the development of big data. For example, in 2018, Tianjin introduced the *Tianjin Regulations on the Promotion of Big Data Development and Application*. In view of the urgent needs and development and application of big data in Tianjin, the Regulations adhere to a principle of holistic planning, innovation-driving, law-based governance, development promotion, win-win opening, in-depth application, prosperous business, and security assurance, and give play to the role of big data in commercial, civil, and political fields, in a bid to build a new pattern of big data development and application and accelerate the cultivation of a data-driven intelligent economic form featuring human-machine synergy, cross-border integration, and collaborative sharing.³⁹⁵³ It can be expected that along with the exploration of big data regulations of local governments in China, a big data law and a dedicated big data management department at the central government level may be created in the future.

15.2.3.3 Consumer Protection in the Field of the Digital Economy

15.2.3.3.1 Protection of Digital Economy Consumers in the Law on Protection of the Rights and Interests of Consumers

In 2013, China amended the *Law on Protection of the Rights and Interests of Consumers* for the first time in 20 years. The digital economy in consumer protection is mainly reflected in online shopping. In the past 20 years, with the rise and development of the Internet, online sales and shopping have developed into an important trading mode. According to reports, the amount of online sales transactions was 26.3 billion yuan in 2006, reaching 1.3 trillion yuan in 2012 and an increase of 49 times in six years. On the other hand, the data released by the China Consumers Association showed that in 2012, consumer associations at various levels across the country accepted 20,454 online shopping com-

3951 Zhe Xuan: “Promoting the “running for the last time” Reform, in the People’s Daily July 9, 2018, 7th edition.

3952 See http://www.sohu.com/a/272647825_329538, last visit date: February 2, 2019.

3953 See http://www.gzdsj.gov.cn/xwzx/gnpd/201812/t20181219_3372603.html, last visit date: February 2, 2019.

plaints, accounting for 52.4% of all sales service complaints.³⁹⁵⁴

In 2013, the *Law on Protection of the Rights and Interests of Consumers* was amended to include consumer protection under remote shopping conditions such as the Internet shopping. Article 28 stipulates: “Operators who provide goods or services by means of the Internet, television, telephone, e-mail etc. and operators who provide financial services such as securities, insurance and banking shall provide consumers with the business address, contact information, quantity and quality of goods or services, prices or fees, terms and conditions of performance, safety precautions and risk warnings, after-sales service, civil liability and other information.” This article guarantees online consumers’ right to know. Article 29 stipulates: “The personal information of the consumers collected by the operators and their staff must be strictly kept confidential and must not be disclosed, sold or illegally provided to others. The operators shall take technical measures and other necessary measures to ensure information security and prevent personal information from being leaked or lost. In the event of information leakage or loss, remedial measures should be taken immediately.” This article protects the personal information rights of consumers in the process of consumption. Article 25 stipulates the operator who sells goods by means of the Internet, television, telephone, mail, etc. In principle, the consumer has the right to return the goods within seven days from the date of receipt of the goods. This article is called the “repentance right” of online consumers by Chinese legal scholars, which balances the interests of consumers and network operators.

15.2.3.3.2 The Protection of Digital Economy Consumers in the E-Commerce Law

On August 31, 2018, China officially issued a specialized *E-commerce Law*, which was implemented on January 1, 2019, and involves plenty of consumer rights protection. Some commentators believe that the newly-developed “E-Commerce Law” contains several highlights in consumer protection: (1) online live sales of goods and provision of services are covered by the Law; (2) prohibition of fictitious transactions and fabrication of comments and the platform may not delete comments; (3) search results with non-personal feature options that can avoid a big data trap; (4) tied-in sales shall be prominently reminded, with “default check” prohibited; (5) the refunding method and procedures the deposit shall be expressly indicated without unreasonable conditions; (6) the platform operators, if they operate and take liability on their own, shall disclose this nature clearly according to the law; (7) the platform operators shall be held liable according to the law if they fail to fulfill their obligations; (8) increase the burden of proof of the operators and protect consumers’ rights in accordance with the law.³⁹⁵⁵

China is currently engaged in consumer rights protection law enforcement through the market regulation departments. The State Administration for Market Regulation is a na-

3954 See China National People’s Congress website http://www.npc.gov.cn/npc/xinwen/lfgz/2013-10/28/content_1811772.htm, last visit date: February 2, 2019.

3955 See the China Consumers Association website <http://www.cca.org.cn/zxsd/detail/28218.html>, last visit date February 2, 2019.

tional consumer supervision department that provides guidance and assistance to the rights protection of all consumers including those consuming in the digital economy. In 2016, the State Council also established an inter-ministerial meeting on protection of consumer rights. In addition, all consumers, including Internet consumers, can file lawsuits and defend their rights in the people's courts. According to China's *Civil Procedure Law* and the judicial interpretation of the Supreme People's Court, China Consumers Association and the provincial consumer associations can also file consumer civil public interest lawsuits.

15.2.3.4 Regulatory Protection of Personal Information

In addition to the supervision of the implementation of the law by the Standing Committee of the National People's Congress, the institutions that supervise personal information protection in China mainly include the Central Network Information Office, the Ministry of Industry and Information Technology, etc. The Central Network Information Office coordinated the network security work and related supervision according to the *Cybersecurity Law*; the Ministry of Industry and Information Technology and the provincial telecommunications management agencies carried out the protection of users' personal information according to the *Regulations on the Protection of Personal Information of Telecommunications and Internet Users*. In addition, the SAMR will supervise and protect consumer personal information in accordance with the provisions of the *Law on Protection of the Rights and Interests of Consumers* and the *E-Commerce Law*. National Information Security Standardization Technical Committee (TC260), China Communications Standards Association (CCSA) and other standards organizations are actively setting personal information protection standards. The TC260 organized and formulated a number of nationally recommended standards such as the *Guidelines on Personal Information Protection of Public and Commercial Service Information System concerning Information Security Technology* and *Specifications on Personal Information Security concerning Information Security Technology*. CCSA, in order to ensure the effective protection of personal information protection for telecommunications and Internet users, relied on TC543 and TC485 to set national and industry standards covering personal information protection of telecommunications and Internet service users, personal information protection of intelligent terminals and information security big data.³⁹⁵⁶

In general, China's regulation of personal information is carried out by industry and field. There is no separate personal information supervision department. The existing personal information protection problems occur mostly in online consumers, social networking and cybersecurity environment.

3956 See CAICT: White Paper on Personal Information Protection for Telecommunications and Internet Users (2018)

15.2.4. Regulatory Authorities and their Structures in the Field of China's Digital Economy

15.2.4.1 Functional Departments of China's Digital Economy Regulation

According to the political system established by the Chinese Constitution, the National People's Congress and its Standing Committee are the highest organ of state power, enjoying the legislative power of the state. They can supervise the implementation of the law and naturally are responsible for supervising the implementation of laws involving the digital economy. The State Council, as the Central Government of China, enjoys the highest administrative power and formulates strategic guidelines and administrative regulations concerning the digital economy in accordance with the law. The Supreme People's Court is the highest judicial organ in China. It formulates judicial interpretations with universal applicable validity in accordance with the law, issues guidance cases in order to guide the trial practice of courts nationwide, and harmonizes standards of adjudication for digital economic cases. Other departments are specifically responsible for the supervision and implementation of the digital economy.

The government functions of China involved in the regulation of the digital economy are as follows:

The Ministry of Industry and Information Technology: It is the national competent authority for information, telecommunications, artificial intelligence, and big data development.

The State Internet Information Office: It performs regulatory functions on the Internet content in accordance with the authorization of the State Council.

The State Administration for Market Regulation: It supervises of consumer protection, unfair competition and monopoly cases involving the digital economy.

China Consumers Association: Under the guidance of the SAMR, it assists consumers, including e-commerce consumers, in defending their rights.

15.2.4.2 The Role of Competition Law Enforcement Agencies in the Development of the Digital Economy

Since China's *Anti-monopoly Law* has been implemented for 10 years, China's Anti-monopoly Law enforcement agencies have handled a number of cases of typical significance. Along with the implementation of *Anti-monopoly Law*, China's digital economy has also thrived. Judging from the law enforcement cases published by China's Anti-monopoly Law enforcement agencies, there is currently less direct enforcement towards the Internet, AI, and e-commerce companies. This is mainly because the behaviors of such enterprises belong to emerging market behaviors. The extent of harm to market competition is still uncertain. Despite this, the current Anti-monopoly Law enforcement agencies

still dealt with several cases, mainly focusing on telecommunications companies, such as the monopoly case of China Unicom Inner Mongolia, the monopoly case of China Mobile Inner Mongolia and the monopoly case of the Ningxia Telecom industry handled by the industrial and commercial departments; as well as the monopoly case of Jihua Group Information Network Technology Company, the monopoly case of Changchun Telecom Enterprise, and the monopoly case of Liaoning Telecom Enterprise handled by the NDRC or the pricing regulation departments. Some people believe that in the process of establishing and maintaining a competition mechanism in a transitional country like China, the public tend to hold somewhat too high expectation towards the role of Anti-monopoly Laws and to some extent they are going too far and unrealistic. For big data-related business practices, we must adopt a modest and prudent approach in law enforcement, and avoid a belief that anti-monopoly regulations are omnipotent.³⁹⁵⁷

It is particularly noteworthy that in the *“Provisions on the Prohibition of Abuse of Market Dominant Status (Draft for Comment)”* recently promulgated by the SAMR, the SAMR has for the first time incorporated data monopoly into the field of Anti-monopoly Law enforcement. For the first time in the draft, the market dominance status of new economic operators including the Internet operators were stipulated, which stipulates that in addition to the consideration of the market shares occupied by operators, the competition characteristics, business models, network effects, technical characteristics, market innovation, mastery of relevant data and the influence of operators in the relevant market should be considered as well.³⁹⁵⁸ This indicates it is likely to conduct law enforcement against data monopoly in the future Anti-monopoly Law enforcement practice.

15.2.4.3 The Role of the People’s Courts in the Development of the Digital Economy

Chinese courts attach great importance to their own information application. In 2016, the development of the “Smart Courts” was included in the *Outline of the National Informatization Development Strategy* and the *13th Five-Year National Informatization Plan*, and it has elevated to the national strategic level. The Supreme People’s Court issued the *Opinions on Accelerating the Construction of Smart Courts* in April 2017, aiming at implementing the innovation-driven development strategy, putting in place the *Outline of the National Informatization Development Strategy* and the *13th Five-Year National Informatization Plan*, and completing of the tasks proposed in the *Five-Year Development Plan for the Informatization of the People’s Courts (2016-2020)*, so as to further modernize the trial system and capability through increased IT application. The *Opinions* pointed out that the construction of smart courts is to build a networked, transparent, and intelligent people’s court information system, to support online business processing, and make sure the full-process trial and execution are open to the public and provide a full range of intelligent services to judges, litigation participants, the public and the government departments to enable information technology to effectively serve trials and executions.

3957 See Zhan Fujing, Wang Xianlin: A Preliminary Study of Big Data Issues from the Perspective of Anti-monopoly, in *Price Theory and Practice*, No. 9 of 2018

3958 See Southern Metropolis Daily http://epaper.oeeee.com/epaper/A/html/2019-02/01/content_3815.htm, last visit date February 5, 2019.

It is also aimed to bring justice closer to the people, and to continuously improve the science-based management of people's courts at all levels with advanced information technology.³⁹⁵⁹

By the end of 2017, as for trial and execution data of Chinese courts, data of 122 million cases, more than 8 million electronic files and over 6 million electronic dossiers of nationwide courts were collected. In terms of judicial personnel data, more than 240,000 items of data concerning judicial personnel of nationwide courts were gathered. For external data, the collaborative application of external data of national citizens, road traffic accidents, organization code, lawyers, fishing boats, etc. was realized. In the area of information application and management, the data, including information system catalogs, cold standby data and informatization construction standards, were gathered and integrated. And with the "legal eyes" platform, the data involving infrastructure status, audio-visual resources and application quality and efficiency were collected as well. Fifty items of informatization standards centering on data were prepared and published. At present, the world's largest judicial information resource database has been built.³⁹⁶⁰ The specific data also showed that as by March 2018, the national courts, through IT application, reduced 1.44 billion travels for the public and police officers, an equivalent of about 19.4 billion kilometers, 16.1 billion yuan of cost reduction as well as 990,000 tons of standard coal and 2.03 million tons of carbon emissions saved. In addition, we promoted paperless office through electronic signatures and seals, online documentary circulation and other applications. In 2017, we saved about 549 tons of paper, equivalent to protecting 9328 trees. We also saved about 3 billion hours of work for the public and police officers through various types of IT applications, equivalent to 1.49 million people working for a whole year in the traditional way.³⁹⁶¹

China has also established independent Internet courts to hear judicial cases concerning the Internet. There are now three Internet courts: one in Beijing, one in Hangzhou and one in Guangzhou. According to *the Supreme People's Court's Provisions on Several Issues Case Trial of Internet Courts*, the above three Internet courts will accept Various types of cases, such as e-commerce platforms and the Internet, to further safeguard the operation of the digital economy.

In addition, Chinese courts, especially the Supreme People's Court, have established many rules in the development of the digital economy by issuing judicial interpretations and handling cases. For example, in the globally influential case of *Qihoo v. Tencent* for the alleged latter's abuse of market dominant position, the Supreme People's Court in the final instance further explained the applicable method in identifying the market dominant position of an Internet company, which has produced a far-reaching influence on theory and practice of Anti-monopoly Law.

3959 See China Supreme People's Court website <http://www.court.gov.cn/zixun-xiangqing-42062.html?from=groupmessage>, last visit date February 5, 2019.

3960 See China Court website <https://www.chinacourt.org/article/detail/2017/11/id/3078796.shtml>, last visit date February 5, 2019.

3961 See China Court website <http://www.court.gov.cn/zixun-xiangqing-85042.html>, last visit date: February 5, 2019.

15.2.5. The Relationship between Competition Law Enforcement and Industry Regulation in the Field of the Digital Economy

15.2.5.1 Interaction between Competition Law Enforcement Agencies and Industry Regulatory Authorities

According to the provisions of China's *Anti-monopoly Law*, Anti-monopoly Law enforcement agencies enjoy relatively independent law enforcement powers in the whole industry. In principle, industry regulatory authorities do not have the power to participate in Anti-monopoly Law enforcement. The interaction between China's Anti-monopoly Law enforcement agencies and industry regulatory agencies is mainly reflected in the following two aspects:

15.2.5.1.1 Joint Enforcement Mechanism of Anti-monopoly Law Enforcement Agencies and Industry Regulatory Authorities

For example, in December 2018, according to media reports, there was a broadband monopoly in a Beijing-based office building and small companies were forced to move out. The Ministry of Industry and Information Technology requires the Beijing Communications Administration to investigate and deal with relevant enterprises that have violated laws and regulations. The Beijing Communications Administration immediately launched an operation to investigate the situation and participated in a joint law enforcement probe led by the Beijing Bureau for Market Regulation.³⁹⁶² It can be seen that for Anti-monopoly Law enforcement in specific industries, competition law enforcement agencies can cooperate with industry authorities to ensure the healthy operation of the market. This actually involves how China deals with the relationship between competition policy and industrial policy.

Chinese scholars believe that the relationship between competition policy and industrial policy varies in different industries and different development stages of the same industry. In different countries, because of different stages of economic development, different levels of legalization of competition policies and industrial policies, the relationship between Anti-monopoly Law and the industrial regulatory legal system also varies. In China, Anti-monopoly Law enforcement agencies have the statutory authority to maintain market competition, so has the government industrial regulation department. When the Anti-monopoly Law enforcement agency conducts law enforcement on suspected monopolistic conduct, the government's industrial regulation department shall cooperate with each other and maintain certain modesty and restraint when necessary. Similarly, when the government's industrial regulation department can effectively adopt industrial regulatory measures on suspected monopolistic behavior, the enforcement of Anti-monopoly Law enforcement agencies also needs to maintain the necessary

3962 See People's Daily Online <http://tc.people.com.cn/n1/2018/1205/c183008-30443955.html>, last visit date February 5, 2019.

modesty and restraint.³⁹⁶³ In addition, the State Council's Anti-monopoly Committee, as the statutory deliberation and coordination agency concerning anti-monopoly matters, must "leverage its function and improve the administrative coordination mechanism to strike a balance between Anti-monopoly Law enforcement agencies and industrial regulatory agencies."³⁹⁶⁴

15.2.5.1.2 Implementation of the Fair Competition Review System

The fair competition review is a unique institutional measure in China. The review is to decide whether economic policies especially industrial policies have restricted or excluded competition.³⁹⁶⁵ The State Council's *Opinions on Establishing a Fair Competition Review System in the Construction of the Market System (Guo Fa [2016] No. 34)* pointed out: "The establishment of a fair competition review system is to prevent excessive and improper government intervention in the market. It is conducive to ensure that resources are allocated based on the market rules, prices and competition to maximize benefits and efficiency. According to the provisions of these *Opinions*, the implementation body of fair competition review is the policy-making departments and its legal institutions. The policy documents of Chinese governments at all levels have to experience this review before they are introduced. If they are not reviewed or fail to pass the review or are believed by reviewers that they will produce the effect of eliminating competition, such documents will not be developed. Although the body of fair competition review is the policy-making departments, since they usually lack competition-related knowledge, they tend to seek advice and suggestions from Anti-monopoly Law enforcement agencies. The Chinese academic community is advocating the legalization of the fair competition review system and incorporating it into the framework of the *Anti-monopoly Law*."

15.2.5.2 Relationship between Competition Law Enforcement Agencies and Consumer Protection Agencies

Overall, China's Anti-monopoly Law enforcement agencies and consumer protection agencies are unified and consistent, namely the SAMR at the central level and market regulations at various lower levels. According to the *Regulations on the Function Configuration, Internal Organizations and Staffing of the State Administration for Market Regulation* released in 2018, the SAMR set up the Anti-monopoly Bureau. The Bureau formulates anti-monopoly system measures and guidelines, organizes the implementation of Anti-monopoly Law enforcement work, and guides enterprises abroad to respond to anti-monopoly cases. It also guides the fair competition review; undertakes the international cooperation and exchange in Anti-monopoly Law enforcement; and undertakes the dai-

3963 See Meng Yanbei: "The Relationship between China's Anti-monopoly Law Enforcement Agencies and Government Industry Regulation Departments", in *Journal of Renmin University of China*, No. 2, 2015.

3964 See Wang Xianlin: "Two Key Words of the Industrial Policy: Law and Competition", in *Exploration and Contention*, No. 1, 2017.

3965 See Wang Xianlin: "Analysis of Competition Policy and Anti-Monopoly Strategy", in *China Market Supervision Research*, No. 1, 2016.

ly work of the State Council Anti-monopoly Committee. The SAMR is also responsible for guiding the China Consumers Association to protect consumer rights.

In addition, China's competition law itself has factors that protect consumer rights. The *Law against Unfair Competition*, amended in 2017, clarifies the protection of consumer rights as the legislative purpose in Article 1. It stipulates: "This Law is enacted to promote the healthy development of the socialist market economy, encourage and protect fair competition, prevent unfair competition and protect the legitimate rights and interests of operators and consumers." In the context of Chinese Law, damages to consumers' rights may constitute unfair competition. When it comes to identifying specific unfair competition behaviors, it is more important to consider the influence of factors regarding consumers. For example, when determining false publicity behaviors, the standard of general consumers should be adopted.³⁹⁶⁶ Similarly, China's *Anti-monopoly Law* also regards consumer interests as the legislative purpose. Article 1 of the *Anti-monopoly Law* stipulates: "This Law is enacted for the purpose of preventing and restraining monopolistic conducts, protecting fair market competition, enhancing economic efficiency, safeguarding the interests of consumers and the interests of the society as a whole, and promoting the healthy development of socialist market economy." China's "Anti-monopoly Law" also has to consider the impact of consumers' interests in specific systems such as the application of the exceptional provisions of the monopoly agreement, factors for consideration in examination of the concentration of undertakings, and the exemption of natural monopoly. Therefore, to a certain extent, China's competition law enforcement agencies also bear a function of consumer protection.

15.2.5.3 The Relationship between Competition Law Enforcement Agencies and Specialized Intellectual Property Agency

China's specialized intellectual property agency is the China National Intellectual Property Administration (CNIPA), which was directly under the State Council by 2018 and has relative independence from the Anti-monopoly Law enforcement agencies. After the reform of China's state authorities in 2018, the re-established CNIPA began to be administered by the SAMR. According to the 2018 *"Regulations on the Function Configuration, Internal Organizations and Staffing of the State Administration for Market Supervision Regulation"*, the CNIPA is responsible for guiding trademark and patent law enforcement, formulating and guiding the implementation of rights confirmation and infringement standards of trademarks and patents. It takes the responsibility of setting inspection, appraisal and standards for patent and trademark law enforcement, and establishing relevant mechanisms to bridge policies and standards and facilitate information reporting. The SAMR is responsible for organizing and guiding the enforcement of trademarks and patents.

Article 55 of China's *Anti-monopoly Law* stipulates: "This law is not applicable to undertakings who exercise their intellectual property rights in accordance with the laws and

3966 See Wu Peicheng: "Legislative Reflections of and Rues Reconstruction of the False Promotion System", in *Graduate Students Law*, No. 4, 2017.

administrative regulations on intellectual property rights; however, this Law shall be applicable to the undertakings who eliminate or restrict market competition by abusing their intellectual property rights.

In April 2015, the former State Administration of Industry and Commerce promulgated the *Provisions on the Prohibition of Abuse of Intellectual Property Rights to Exclude and Restrict Competition*, which stipulate the non-price monopoly agreements formed through exercising IP rights and acts of abusing market dominance. In 2017, the Office of the Inter-Ministerial Joint Conference on the Implementation of the Intellectual Property Strategy of the State Council, involving China's Anti-monopoly Law Enforcement Agencies and Intellectual Property Specialized Organs, issued the "*Plan for Implementation of the National Intellectual Property Strategy and Acceleration of the Development of a Major IP Country*" in 2017, which introduced anti-monopoly guidelines for the abuse of intellectual property rights. The guidelines are intended to clarify the criteria for the determination of monopolistic behavior in the field of intellectual property and strengthened the supervision of abuse of intellectual property rights. Specific work was carried out by the then country's Anti-monopoly Law enforcement agencies: National Development and Reform Commission, the Ministry of Commerce, and the State Administration of Industry and Commerce as well as the China National Intellectual Property Office. The above-mentioned four departments drafted the *Anti-Monopoly Guidelines for Abuse of Intellectual Property Rights (Draft Proposal)* in conjunction with their respective functions and practical experience. In March 2017, the Anti-Monopoly Committee of State Council announced the *Anti-Monopoly Guidelines for Abuse of Intellectual Property Rights (Draft for Comment)* to the public and solicited opinions. According to the latest news, the *Anti-Monopoly Guidelines on Intellectual Property* has been adopted in principle by the new Anti-monopoly of the State Council on November 1, 2018, and it will be promulgated soon.

15.2.5.4 Anti-monopoly Exemptions for Specific Industries

Article 7 of China's *Anti-monopoly Law* provides "For industries where State-owned economy holds a controlling position which affects the lifeline of national economy and national security and industries which implement exclusive dealing pursuant to the law, the State shall protect the legitimate business activities of the undertakings, implement control and regulation over the business activities of the undertakings and the prices of their commodities and services pursuant to the law, safeguard the interests of consumers and promote technological advancement." Article 56 states "This Law shall not apply to cooperative or collaborative activities between agricultural producers and rural economic organizations in business activities such as the manufacture, processing, sale, transportation and storage etc of agricultural products."

Chinese legal scholars generally believe that Article 7 of the *Anti-monopoly Law* mainly plays a declarative role. Because China's Anti-monopoly Law does not oppose monopoly status or market dominant position itself, but abuses against market dominant position. Therefore, the abuse by companies in certain monopoly industries, such as monopoly of high prices and tie-in sales, is still subject to anti-monopoly regulations. China's agri-

cultural development is still relatively backward and its foundation is weak. The government should take a variety of protection measures to protect it. Therefore, China's Anti-monopoly Law draws on foreign legislative experience and stipulates that agricultural activities can be excluded from the application of the *Anti-monopoly Law*.³⁹⁶⁷

15.2.6. A Brief Introduction on the Implementation of the Competition Law in China's Digital Economy (cases, compilations, etc.)

15.2.7. Amendments of China's Competition Law and Reform of Regulatory Agencies

15.2.7.1 Amendment of China's Law against Unfair Competition and its Coordination with the Anti-monopoly Law

In the early days of reform and opening up, China's market economic system was yet to be improved. There was no realistic basis for the enactment of Anti-monopoly Law. Hence, in 1993, China enacted the *Law against Unfair Competition* which included not only the content of unfair competition, but also content regarding anti-monopoly regulations. In 2007, China enacted the *Anti-monopoly Law*, which became effective in 2008. Therefore, there is a certain degree of overlap between the *Law against Unfair Competition* of 1993 and the *Anti-monopoly Law*, which is an important reason for the revision of the *Law against Unfair Competition* in 2017.

The Chinese Anti-monopoly Law community generally believes that the first thing to revise and improve the *Law against Unfair Competition* is to delete the existing anti-monopoly provisions so that the revised *Law against Unfair Competition* only adjusts the narrow unfair competition behavior and accordingly, the *Law against Unfair Competition*, which is based on the maintenance of business ethics, would be intrinsically coordinated with the Anti-monopoly Law, which is committed to maintaining free and fair competition and economic vitality.³⁹⁶⁸ Therefore, in order to rationalize the relationship between the *Law against Unfair Competition* and the relevant legal system, Articles 6, 7, 11 and 15, regarding the exclusion and restriction of competition conducted by public utilities, administrative monopoly, low-cost dumping, collusive tendering and bidding respectively³⁹⁶⁹ were deleted when the *Law against Unfair Competition* was amended in 2017. Because of this, a reasonable distinction between the *Law against Unfair Competition* and the *Anti-monopoly Law* was achieved.

3967 See Wang Xianlin, *Competition Law* (3rd Edition), Renmin University of China Press, 2018, p. 210.

3968 See Wang Xianlin: "A Macroscopic Thinking on the Revision of the Law of the P.R.C. against Unfair Competition", in *China Business Management Research*, No. 7, 2014.

3969 See Zhang Mao: "Notes on the 'Law of the PRC against Unfair Competition (Revised Draft)'", see National People's Congress website http://www.npc.gov.cn/npc/xinwen/2017-11/07/content_2031329.htm, last visit date February 2, 2019.

In the process of achieving legal coordination, the revision process of the *Law against Unfair Competition* is also controversial. The most prominent part of the revision is the provision regarding the position of relative advantage. The provision, written as “The acts of abusing the relative advantage position, involving restricting competition yet not subject to the *Anti-monopoly Law*, shall be governed by this Law”³⁹⁷⁰, was suggested in the *Law against Unfair Competition (Revised Draft for Review)* submitted by the State Council of China to the Standing Committee of the National People’s Congress for its review. However, the provision was seriously challenged in the subsequent review by the NPC. One of the challenges was that it actually reduced the criteria for the definition of abuses in the context of the *Anti-monopoly Law*, making criteria for the proof of the market dominant position in the *Anti-monopoly Law* significantly lower. It is easy to cause the escape phenomenon of the *Anti-monopoly Law* to the *Law against Unfair Competition*. As a result, the provision on abuse of the comparative advantage was deleted in the final amendment of the *Law against Unfair Competition*.

15.2.7.2 Tendency of Revision of China’s Anti-monopoly Law

2018 marks the 10th anniversary of the implementation of China’s *Anti-monopoly Law*. The Chinese government launched a revision process for the *Anti-monopoly Law* to better meet the needs of economic and technological development. Some provisions of the current *Anti-monopoly Law* have not fully adapted to the needs of the present and the future. China’s *Anti-monopoly Law* circles and law enforcement agencies are eager to amend the Law. The Anti-monopoly Committee of the State Council of China has included the revision of the *Anti-monopoly Law* in its work plan. The Standing Committee of the 13th National People’s Congress has also included the task into the legislative plan.

In the revision process of China’s *Anti-monopoly Law*, the Office of the Anti-monopoly Committee of the State Council has identified four principles for the revision of the Law: First, it is necessary to crystalize legislative policies from legal practice. China’s *Anti-monopoly Law* has been practiced for 10 years. It is necessary to absorb the experience of law enforcement and the latest research results of competition policy. Second, the revision must reflect national conditions and adapt to the level of economic development of China. It is also necessary to absorb the mature practices and experience of developed countries. Third, the revision needs to fully consider the uncertainty characteristic of the *Anti-monopoly Law* and ensure flexibility of the law while regulating the discretion of law enforcement agencies. Fourth, the revision needs to address the most urgent questions in law enforcement practice.

China’s *Anti-monopoly Law* circle has also put forward many suggestions and directions on the revision and improvement of the *Anti-monopoly Law*. Some scholars believe that competition policy and the corresponding fair competition review system should be included in the *Anti-monopoly Law* in a timely manner, and should not only stay at the level of the State Council’s regulatory documents. It is necessary to further promote the es-

³⁹⁷⁰ Wang Xianlin: “Two Comments on the ‘Law against Unfair Competition (Revised Draft for Review)’”, contained in the 5th edition of *China Business News* on March 2, 2016.

establishment and improvement of a unified, efficient and authoritative *Anti-monopoly Law* enforcement system, as well as the establishment and improvement of the procedural rules of the Law. Some scholars have suggested improving the punishment provisions of the *Anti-monopoly Law*, such as establishing a model of anti-monopoly administrative punishment centered on fines, while abolishing the punishment of confiscating illegal gains.³⁹⁷¹ In addition, some scholars, in view of the development of the digital economy, pointed out that the revision of the *Anti-monopoly Law* must take into account the development of new Internet formats. Under the digital economy, compared with traditional enterprises, the platform has the nature of both the market and enterprises, and it faces competitive characteristics that are vastly different from old ones. For example, it is difficult for traditional enterprises to monopolize the entire market, while platform companies often have a dominant position in the market. Compared with that of traditional enterprises, the monopoly of the platform is more likely to promote rather than harm the market efficiency. Secondly, in addition to the traditional price competition and production competition, the competition between enterprises is mainly reflected in the “Schumpeterian” innovation that will bring about creative destruction, which has largely pose a challenge to the determination of market dominant position.³⁹⁷²

15.2.7.3 Impact of China’s State Institutional Reform on the Implementation of Competition Law

15.2.7.3.1 The Powers of China’s Anti-monopoly Law Enforcement Agencies before the Reform

Since the official implementation of China’s *Anti-monopoly Law* in 2008, according to the Chinese government’s division of agency responsibilities, the National Development and Reform Commission, the Ministry of Commerce, and the State Administration for Industry and Commerce have respectively conducted anti-monopoly Law enforcement. Specifically, the National Development and Reform Commission set up a Price Supervision and Anti-Monopoly Bureau, to investigate and deal with price monopoly behavior according to law. The Ministry of Commerce set up an Anti-Monopoly Bureau. The Bureau is to conduct review on the concentration of undertakings according to law, guide Chinese enterprises abroad to respond to monopoly lawsuits and carry out international exchanges and cooperation in multi-bilateral competition policies. In addition, it undertakes the specific work of the Anti-Monopoly Committee of the State Council as stipulated in the *Anti-monopoly Law*. The State Administration of Industry and Commerce established an Anti-Monopoly and Anti-Unfair Competition Enforcement Bureau based on the former Fair Trade Bureau. The duties of the new Bureau are as follows: to formulate relevant anti-monopoly and anti-unfair competition measures; to undertake relevant anti-monopoly law enforcement work; to investigate and deal with illegal eco-

3971 See Legal Daily website http://www.legaldaily.com.cn/zt/content/2018-08/03/content_7610204.htm?node=92192, last visit date February 2, 2019.

3972 See Xinhuanet http://m.xinhuanet.com/tech/2018-11/21/c_1123743755.htm, last visit date February 2, 2019.

conomic cases involving unfair competition, commercial bribery, smuggling, etc., and to supervise the handling of major or typical cases.³⁹⁷³

15.2.7.3.2 Unified Anti-monopoly Enforcement after the Reform

The above-mentioned mechanism for jointly implementing China's *Anti-monopoly Law* by the three institutions has been aptly called the "troika" by the academic circle. The implementation mechanism of this "Anti-monopoly Law" had continued until 2018. At the beginning of 2018, the CPC and Chinese government carried out institutional reforms of many central and state agencies, including anti-monopoly law enforcement agencies. According to the *Plan of the Central Committee of the Communist Party of China to Deepen the Reform of the Party and State Institutions*, China established the State Administration for Market Regulation (the ministerial level) in 2018 as a dedicated agency directly under the State Council. All the anti-monopoly enforcement duties of the NDRC, the Ministry of Commerce and the former SAIC began to be performed by the SAMR. Meanwhile, the SAMR also undertakes the work of the Anti-Monopoly Committee of the State Council.

For the three-in-one move of China's Anti-monopoly Law enforcement agencies, Chinese Anti-monopoly Law scholars and law enforcement officials generally expressed their welcome. Some commentators believe that the reform of anti-monopoly law enforcement agencies have the following features. First, it has eliminated the overlapping of functions of the three agencies, which is conducive to improving law enforcement resources and enhancing regulatory efficiency. Second, it has improved the top-level design of the anti-monopoly regulatory system, which is beneficial to build a fair competitive market environment and serve people's needs for a better life. Third, it has increased the predictability and uniformity of anti-monopoly law enforcement, which is conducive to promoting the rule of law, fostering a favorable international business environment, and advancing China's high-level two-way opening-up.³⁹⁷⁴

After taking up a unified anti-monopoly law enforcement function, the SAMR has begun to carry out corresponding anti-monopoly law enforcement work. In December 2018, the SAMR issued the *Notice of the SAMR on Anti-monopoly Enforcement Authorization* ("SAMR anti-monopoly [2018] No. 265"), which states that the SAMR and market regulations at provincial levels, within their respective powers, can conduct law enforcement of monopoly agreements, abuse of market dominant position, and administrative monopoly. In addition, the concentration of undertakings is still subject to the review of the SAMR. In order to further detail the Anti-monopoly Law enforcement work, the SAMR issued to the public the *Regulations on the Suppression of Abuse of Administrative Power to Exclude and Restrict Competition (Draft for Comment)*, the *Regulations on Prohibition of Monopoly Agreements (Draft for Comment)*, and the *Regulations on the Prohibition of the Abuse of the Market Dominant Status (Draft for Comment)*. And they will soon be made into departmental rules for the use of enforcement agencies.

3973 See CCTV website <http://jingji.cntv.cn/special/dxltfld/20111113/106210.shtml>, last visit date February 3, 2019.

3974 See the Chinese Government website http://www.gov.cn/xinwen/2018-11/16/content_5341034.htm#1, last visit date February 5, 2019.

15.2.7.3.2 Private Implementation of China's Anti-monopoly Law and Establishment of the IP Court of the Supreme People's Court

China's *Anti-monopoly Law* is not only publicly implemented by the anti-monopoly law enforcement agencies, but also privately implemented by the certain bodies with courts as main participants. In 2012, the Supreme People's Court of China promulgated the *Provisions on Several Issues Concerning the Application of Laws in the Trial of Civil Disputes Caused by Monopolistic Behaviors*, to clarify such issues as the prosecution, case acceptance, jurisdiction, burden of proof, evidence of litigation, civil liability and statute of limitations. Especially in 2018, China made a large-scale reform of the litigation and trial system involving patents and monopoly cases. According to the *Decision on Several Issues Concerning the Proceedings of Intellectual Property Cases Such as Patents* adopted by the Standing Committee of the National People's Congress on October 26, 2018, if the parties are not satisfied with the judgments and rulings of the first-instance civil and administrative monopoly cases, the second instance shall be directly heard by the Supreme People's Court. Immediately thereafter the Supreme People's Court of China issued a judicial interpretation *Provisions of the Supreme People's Court on Certain Issues Concerning Intellectual Property Courts*, promulgating the establishment of the dedicated Intellectual Property Court of the Supreme People's Court to uniformly handle cases such as monopoly and patents in the second instance. According to relevant reports, the Supreme People's Court unifies the trial of monopoly and patent cases because such cases, more technical and challenging to try, have a profound impact technological innovation and are crucial to the building of an innovation-driven country.³⁹⁷⁵ The Supreme People's Court's second trial of the cases is also conducive to the unification and standardization of the referee scale. The IP Court of the SPC of China has begun to accept and hear cases.

³⁹⁷⁵ See Zhou Qiang: "Explanations of the 'Decision on Several Issues Litigation Procedures of Cases including Patent (Draft)'", a speech at the Sixth Session of the Standing Committee of the 13th National People's Congress on October 22, 2018, see China Court website <http://www.court.gov.cn/zixun-xiangqing-125521.html>, last visit date February 5, 2019.

Chapter 16: Country Report – South Africa

16.1. Introduction

South Africa, as developing countries are, as is the case with the remaining BRICS countries, subject to the same economic forces and thus, its digital markets are also dominated by the same cast of players, being Facebook, Amazon, Google and Apple. A major problem for South Africa is the appropriateness of South African legislation and regulatory system's capacity to deal with the challenges posed by the digital economy, in particular that the current regulatory framework in many cases does not apply to new, disruptive technology; for example Public and Free-to-air (FTA) broadcaster licensees, subject to local content requirements have the problem that streaming services are not licensed and hence not subject to the same regulatory constraints. Further, there is a limited ability of the competition authority to impose a jurisdictional reach on these global entities.

This report is arranged as follows: the state of the digital economy is first set out, then the regulatory framework is examined. The next section deals with the specific question of competition law and finally there is a summary of case law that has been decided over the twenty year existence of the competition authority.

16.2. Part a: background

a. Internet penetration in South Africa

Internet penetration has grown rapidly with the rise of mobile technologies but remains relatively low compared to other middle-income countries.³⁹⁷⁶ Overall, internet penetration is estimated to be between 40% to 54% compared to a global average of about 57% in 2019.³⁹⁷⁷ Internet use is also a relatively 'new' phenomenon with users reporting that they have, on average, been using the internet for only 6 years.³⁹⁷⁸

The latest General Household Survey (GHS) conducted by Statistics South Africa shows that only 64.7% of South African households reported that 'at least one member of the household' had access to the internet in 2018. Most of those with access to the internet

³⁹⁷⁶ Gillwald, A; Mothobi, O and Rademan, B. 2018. The State of ICT in South Africa. Published by ResearchICTAfrica.net. Available at https://researchictafrica.net/after-access-south-africa-state-of-ict-2017/south-africa-report_04.pdf

³⁹⁷⁷ A 2017 study by research and strategy organisation World Wide Worx estimated internet penetration at 40% in 2017. A nationally representative survey by ResearchICTAfrica.net estimated internet penetration of 53% in 2017 and a Hootsuite Survey of 285 000 internet users estimated penetration of 54% in 2018.

³⁹⁷⁸ We note that the average age of internet users is not reported.

(60.1%) accessed the internet via a mobile device. The next most common means of accessing the internet is 'at work', with 16.2% of households indicating that at least one member of the household had access to the internet at work. Only 10.4% of South African households have access to the internet at home.³⁹⁷⁹

Internet penetration varies significantly across the country, with a stark rural/urban divide. At a household level, internet penetration is highest in Gauteng, the economic hub of the country, where 74.6% of households indicated that at least one member of the household had access to the internet (though only 16.7% had access to internet at home) and lowest in Limpopo, where only 46.2% of households indicated that at least one member of the household had access to the internet (and only 1.7% had access to the internet at home).

At an aggregate level, the Western Cape has the highest internet penetration with 75% of the population having access to the internet, followed by Gauteng at 54.7%, KwaZulu-Natal at 39.2%, Free State at 36.1%, the Northern Cape at 32.9%, North West at 32.1%, and Mpumalanga at 26.5%.³⁹⁸⁰

The rural/urban divide is evident in both internet penetration and smartphone access. In 2017, internet access among urban residents was estimated to be 61%, up from 41% in 2012. Internet access in rural areas was much lower at only 39% in 2017, though this was nearly double the rate of 21% reported in 2012.

Mobile phone access is similarly divided along rural/urban lines. The majority (84%) of South Africans have access to a mobile phone with more than half (56%) having access to a smartphone. More than half the urban population (54%) owned smartphones in 2017 compared to only 33% of those in rural areas.³⁹⁸¹ In absolute terms, this equates to about 29mn smartphones in South Africa, though reportedly only 21mn smartphones are in use. Researchers posit that the other 8mn smartphone owners cannot (regularly) access data, presumably because of the high cost of mobile data (to be discussed in more detail below). Researchers further reported that there is a very strong link between a reduction in mobile data prices and increase in usage, which points to massive pent-up demand for data and internet access at the bottom end of the market.³⁹⁸²

b. Composition of internet use

In addition to geographic disparities, internet access varies according to income, gender and level of education (which may be a proxy for income). Male-headed households are more than twice as likely to have access to internet than female-headed households

3979 Statistics South Africa. 2018. General Household Survey, 2018. Available at <http://www.statssa.gov.za/publications/P0318/P03182018.pdf>

3980 Mcleod, D. 2017. Internet access in SA: rural areas falling far behind. Tech Central. Available at <https://techcentral.co.za/internet-access-sa-rural-areas-falling-far-behind/75789/>

3981 Gillwald, A; Mothobi, O and Rademan, B. 2018. The State of ICT in South Africa. Published by ResearchICTAfrica.net. Available at https://researchictafrica.net/after-access-south-africa-state-of-ict-2017/south-africa-report_04.pdf

3982 Shapshak, T. 2017. South Africa has 21 million internet users, mostly on mobile. Forbes. Available at <https://www.forbes.com/sites/tobyshapshak/2017/07/19/south-africa-has-21m-internet-users-mostly-on-mobile/#7a1073ee1b2d>

(though it is notable that it is more likely that both parents are present in male-headed households). Fifteen percent of male-headed households have access to the internet while only 7% of female headed households do.

On aggregate, internet use and smartphone ownership are higher amongst males than females. Internet access penetration amongst females is 50% while it is 56% amongst males. Though females are more likely (85%) to have a mobile phone than men (83%), men are more likely to have a smartphone (50%) than females (43%).

There is no credible data source for the age profile of internet users in South Africa. The most frequently cited source is a study by *Effective Measures* released in 2018. The study is based on interviews with 285 000 South African internet users conducted in 2017.³⁹⁸³ It shows that more than 80% of South African internet users are between below the age of 44 and that the largest proportion of internet users (32.94%) are between 25 – 34 years old.

Table 1: Age breakdown of internet users in SA

Age range	Percentage of total
15-19	10.06%
20-24	22.77%
25-34	32.94%
35-44	16.89%
45-49	6.37%
50-54	3.06%
55-64	4.73%
>65	3.18%

Source Effective Measures (2018)

Income (or lack thereof) remains one of the most important factors determining digital inclusion. Among adult South Africans earning more than R30 000/month (about \$2 000), internet penetration is 82.4%. Internet penetration declines rapidly as income declines, falling to 61.3% for those earning between R14 000 (\$916)- R18 000 per month (\$1 177), 42% for those earning between R3 000 (\$196) – R6 000 per month (\$392), and below 30% for those earning below R2 500/month (\$164).³⁹⁸⁴

The nationally representative 'After Access' survey confirms that differences in internet access are largely driven by poverty (or income). They estimate that nearly all of those who do not have access to the internet earn less than R7 000 (\$458 at 178Aug) per month while those earning above this threshold are largely connected. However, even at low incomes, location matters. Amongst very low-income earners who earn approximately R1 538 (\$100) per month (which is more or less equal to the old age pension grant), those living in urban areas are more likely to use the internet than those living in rural areas.

³⁹⁸³ MyBroadband. 2018. What we know about internet users in South Africa. Available at <https://mybroadband.co.za/news/internet/251063-what-we-know-about-internet-users-in-south-africa.html>

³⁹⁸⁴ Mcleod, *ibid*. Income converted at ZAR/USD exchange rate of R15,29 on 18 Aug 2019 as reported by Oanda.

Education is also an important barrier to internet access. This is unsurprising as education is correlated with employment and income. The disparity is telling and emphasises the mutually reinforcing nature of various forms of inequality (in wealth, income, gender and location). For people with a primary school education, fewer than 20% have access to the internet regardless of other characteristics (e.g. age, gender and income). For people with some high school education, but who have not completed high school, fewer than 40% have internet access. For those with the post-high school qualification, 71.6% have internet access, on average.

In summary; across the country, internet access at home and at work remains very low and consumers rely mostly on mobile technologies to access the internet. The cost and quality of mobile data is thus critical in facilitating internet access. Further, various forms of inequality (in wealth, income, gender and location) coincide with internet access. This is particularly worrying as internet access lowers the cost to communicate through the use of over-the-top services such as WhatsApp. A lack of access to the internet may thus deepen inequality as returns to internet access increase.

c. How do South Africans access the internet?

South Africans mostly access the internet via mobile devices. South Africa has one of the highest mobile connectivity rates in the world. Based on Q42018 GSMA Intelligence data, SA's mobile coverage rate is 170% (measured as connections/population), which is much higher than the global average of 115%. Most of the mobile devices (84%) are pre-paid (compared to 75% being pre-paid globally).³⁹⁸⁵ Of about 21 million internet users in 2018, 7 million accessed the internet exclusively via mobile technologies.

Internet access using fixed lines is low and decreasing with most households that have access to the internet using either mobile phones (43%) or dongles (36%). However, in terms of national coverage, fixed lines remain important as much of the country (and rural areas in particular) are covered by the transmission infrastructure of former state-owned fixed line monopoly, Telkom.

Telkom is dominant in fixed-line infrastructure with a market share of about 73% and 150 000 km of fibre. The second largest fixed provider is Broadband Infraco, a state-owned company, with a 14% market share. In joint third place are private providers: Neotel, Vodacom and MTN with an estimated 3% market share each.

ResearchICT Africa reports that while competition in the international transmission market has improved with the landing of several undersea cables, national transmission remains a challenge. Former state-owned monopoly, Telkom has more fibre than all other players combined and although there have been complementary investments in urban areas; both peri-urban and rural areas are still mainly reliant on Telkom's infrastructure which still confers some pricing power.³⁹⁸⁶

³⁹⁸⁵ Hootsuite. 2019. Digital 2019. Available at <https://hootsuite.com/pages/digital-in-2019#accordion-115547>

³⁹⁸⁶ Gillwald, A; Mothobi, O and Rademan, B. 2018. The State of ICT in South Africa. Published by ResearchICTAfrica.net.

In recent years, however, there has been significant activity in the FTTx space with rapid acceleration in fibre rollouts. In 2015 fibre accounted for only 3% of total fixed-line subscriptions. This grew nearly 7-fold to 20% of all fixed-line subscriptions in 2018. Though the impressive fibre rollout in South Africa is starting to compete with mobile providers constrained by the lack of LTE spectrum, fibre is heavily skewed towards urban areas, thus reinforcing the rural/urban divide.

Given the importance of mobile data in driving internet access in South Africa, we provide a brief overview of the mobile telecommunications market below.

d. Mobile telecommunications

There are four main mobile internet service providers in South Africa: Vodacom, MTN, Telkom Mobile, and Cell C. Vodacom and MTN were the first entrants into the South African and both started operating in 1994. They were followed by Cell C who entered in 2001, and Telkom Mobile which entered the market in 2010. Based on mobile service revenue for 2018, Vodacom's market share was 49.8%, MTN had a market share of 33.5% and Cell C and Telkom lagged with shares of 12% and 4.7% respectively.³⁹⁸⁷ The market shares are similar in terms of number of subscribers.

In 2018, Vodacom's market share in terms of subscribers was 43.8%, MTN had a market share of 31.8%, Cell C had a market share of 17.2% and Telkom had a market share of 5%. The rest of the market (<2%) is made up of several MVNOs including Hello Mobile, Virgin Mobile, Me&You Mobile, MRP Mobile, and FNB Connect.³⁹⁸⁸

In the preceding sections we emphasised the importance of mobile phones in driving internet access as well as high mobile phone penetration in South Africa. But, despite high mobile coverage, usage remains low. This is mainly explained by relatively high prices of mobile data in a country with significant levels of poverty.³⁹⁸⁹ Cost, and particularly the cost of mobile data, remains a critical factor inhibiting internet access. This is discussed in more detail below. First, we provide an overview of mobile coverage.

e. Availability of Internet networks

Mobile coverage in South Africa is near-universal. According to Vodacom's 2019 Annual Integrated Report, nearly 100% of the South African population is covered by Vodacom's 2G network and 99.5% of the country is covered by its 3G networks. As at 31 March 2019, 90.4% of the country was covered by its 4G network.³⁹⁹⁰ MTN's 2G and 3G networks also

³⁹⁸⁷ Note that mobile service revenue includes retail revenue from the provision of mobile-cellular communication services, including all voice, SMS and data services. Data sourced from Competition Commission Market Inquiry into Data Prices, Available at <http://www.compcom.co.za/data-market-inquiry/>

³⁹⁸⁸ Competition Commission of South Africa. 2019. Data Services Market Inquiry Provisional Findings and Recommendations.

³⁹⁸⁹ In 2017, more than half of South Africans (55.5%) lived below the upper bound poverty line of approximately \$65 per person per month according to Statistics South Africa's "Poverty Trends in SA" report, available at <https://www.statssa.gov.za/publications/Report-03-10-06/Report-03-10-062015.pdf>.

³⁹⁹⁰ Vodacom Limited Integrated Annual Report. 2019. Available at <http://vodacom-reports.co.za/integrated-reports/ir->

cover nearly 100% of the population. MTN reported that their 4G coverage reached 90% in November 2018.³⁹⁹¹

f. Affordability of mobile data

The cost to communicate in South Africa is high; in fact, higher than in most other African countries. In Q12018, South Africa is ranked 35 out of 49 African countries on RIA's Africa Mobile Pricing Index which measures the price of 1GB of prepaid data across a number of countries.³⁹⁹² This is drop of 5 places from its ranking in late 2017. The cheapest prepaid 1GB bundle in South Africa (at R99 or ~\$6.5, see *Table 2*), was more than 6 times the cheapest 1GB bundle of ~\$1.1 available in Egypt.³⁹⁹³

Concerns about the high cost of mobile data in South Africa were an important reason for the launch of the Competition Commission's market inquiry into mobile data services ('Data Inquiry'). The provisional findings of the Data Inquiry confirm that the cost of South Africa's mobile data is not only high, but that prices are higher at lower levels of use which discriminate against poorer users.

The Data Inquiry made the following provisional findings with respect to affordability:

- i. **International benchmarking confirmed that South African data prices are high, particularly for mobile prepaid data.** Specifically, the inquiry found that South Africa's prices compare poorly to other African countries, its BRICS counterparts and that South African mobile operators charge higher prices in South Africa than in other countries in which they operate.
- ii. **Post-paid data prices are cheaper than prepaid prices (Table 2).** This may discriminate against poorer users as post-paid (contract) customers tend to be consumers with a steady (and higher) income.
- iii. **Smaller data bundles are much more expensive, on a MB per MB basis, than larger data bundles. (Table 3).** The Data Inquiry found that smaller data bundles can up to five times more expensive, on a MB per MB basis, than larger data bundles (see the comparison between a 5MB bundle on the MTN network and a 2GB bundle on the same network in *Table 3* below). The inquiry found that this pricing may be anti-poor, as consumers with less disposable income are more likely to purchase smaller data bundles.

Table 2: Prepaid and post-paid data prices for 1GB bundle (2018)

Operator	Data Package	Prepaid Price	Postpaid Price
Telkom	1GB	R99	R99
Vodacom	1 GB	R149	R86

[2019/documents/downloads/Integrated-report-2019.pdf](https://www.competitioncommission.co.za/2019/documents/downloads/Integrated-report-2019.pdf)

3991 Competition Commission of South Africa. 2019. Data Services Market Inquiry Provisional Findings and Recommendations.

3992 Gillwald, A; Mothobi, O and Rademan, B. 2018. The State of ICT in South Africa. Published by ResearchICTAfrica.net.

3993 Ibid.

Operator	Data Package	Prepaid Price	Postpaid Price
Cell C	1 GB	R149	R75
MTN	1.5 GB	R160	R69

Source: Competition Commission Market Inquiry into Data Services

Table 3: The extent to which the implied prices of smaller bundles (i.e. 5MB, 10MB, 50MB, & 100MB) in South Africa exceed the prices of larger bundles (i.e. 1GB & 2GB) (Dec 2018)

Operator	% higher than 1GB				% higher than 2GB			
	5MB	20-30MB	50MB	100MB	5MB	20-30MB	50MB	100MB
Cell C		236%	115%	95%		302%	157%	133%
MTN	400%	275%	213%	119%	515%	362%	285%	169%
Telkom		193%	193%	193%		317%	317%	317%
Vodacom		168%	236%	95%		221%	302%	133%

Source: Competition Commission Market Inquiry into Data Services

g. Is universal service for Internet access available? What are the forms it takes?

The mobile sector has come closest to achieving the universal coverage, with nearly the entire country covered by 2G and 3G.³⁹⁹⁴ Universal Service has been a policy thrust of government since at least 1995, when the first democratic South African government released its White Paper on Telecommunications. The ICT White Paper released in October 2016 affirms this position, advocating strongly for universal access.

Universal service obligations have been included in the licence conditions of all mobile operators as well as fixed line operators Telkom and Liquid Telecom (formerly Neotel). All telecommunications licensees are also required to contribute to the Universal Service Access Fund administered by the Universal Service and Access Agency of South Africa (USAASA), established in 2006 to fund and implement projects to promote universal service provision.³⁹⁹⁵ Prior to the creation of the USAASA, telecommunications licensees were individually responsible for the implementation of their own universal service obligations, and the lack of coordination resulted in fragmentation and the inefficient duplication of infrastructure.³⁹⁹⁶ USAASA will play a coordination role in the rollout of universal service obligations with the aim of removing duplication and expanding coverage.

³⁹⁹⁴ Competition Commission of South Africa. 2019. Data Services Market Inquiry Provisional Findings and Recommendations.

³⁹⁹⁵ Cape Digital Foundation. Are we there yet? South Africa's universal service and access obligation (USAO) framework in review available at <http://digitalfoundation.org.za/south-africa-universal-service-and-access-obligation-framework-in-review/> and USAASA, Background on USAASA available at <http://www.usaasa.org.za/about/index.html>

³⁹⁹⁶ Cape Digital Foundation. Are we there yet? South Africa's universal service and access obligation (USAO) framework in review

16.3. Digital Economy Growth levels in the last 5 years

a. The extent of e-commerce in South Africa

Estimates by Visa and Euromonitor indicate that the market for online retail in South Africa reached approximately R10bn (\$657mn) in 2017. This translates into only 1% of the total retail market which was estimated to be R 1 trillion in 2017.³⁹⁹⁷

Despite the increasing level of internet and mobile penetration, South Africa still lags other countries in e-commerce use. A 2019 survey of internet users found that only 55% of internet users reported buying something online via any device in the month preceding the survey. This is the second lowest figure in the survey, with only Egypt reporting lower use at 47%. The global average was 75%.³⁹⁹⁸ The average spend on consumer goods per e-commerce user is also still low. In 2018 SA reported average spend of \$90, equivalent to 1% of total retail spend, compared to a global average of \$634 per user.³⁹⁹⁹

Takealot is the largest online retailer in South Africa.⁴⁰⁰⁰ It started operating in 2011 as an online shopping platform and has expanded to acquire a food and goods delivery business (Mr Delivery). It has also established several warehouses in major economic centres across the country, and recently started rolling out 'pickup points' at shopping centres, garages on major motorways and office parks. The rollout of physical warehousing is an important competitive advantage against international platforms and potential entrants because of the associated advantage in order fulfilment. However, Takealot it still has some notable competitive disadvantages relative to international competitors as it does not have an e-books, movie streaming and music streaming offering; nor the international scale and brand presence as international competitors.⁴⁰⁰¹

Takealot is currently estimated to have a revenue market share in online revenue from mid-teens to about 30%.⁴⁰⁰² It has grown at a compound annual growth rate of more than 100% [107%] over the past 4 years.⁴⁰⁰³ Takealot is controlled by Naspers, the South-African based internet and media conglomerate, which holds a 96% stake in the firm. In addition to its stake in Takealot, Naspers controls a number of other technology companies in South Africa including nice online clothing retailers Spree and Superbalist, online payment systems company PayU, an internet data research company called Similarweb and online classifieds platforms OLX and Autotrader. Naspers operates in more than 120 countries, and has multiple investments across the BRICS countries. It holds shares in Chinese social networking and gaming firm 'Tencent', Indian online travel company 'MakeMyTrip', Brazil mobile marketplace 'Movile' and Russian internet firm 'Mail.

3997 Goga, S and Paelo, A. 2019. An e-Commerce Revolution in Retail? Available [here](#).

3998 Hootsuite. 2019. Digital 2019. Available at <https://hootsuite.com/pages/digital-in-2019#accordion-115547>

3999 This does not include spend on travel, accommodation, or streaming (e.g. music)

4000 Takealot. Our Roots. Available at <https://www.takealot.com/about/our-journey/>

4001 Goga, S and Paelo, A. 2019. An e-Commerce Revolution in Retail? Available [here](#).

4002 Goga, S and Paelo, A. 2019. An e-Commerce Revolution in Retail? Available [here](#).

4003 Ibid.

ru', amongst others. It also holds shares in broadcast and print media as well as online classifieds.

b. Most popular social networks

South Africans mainly use the internet to access social networks. This is in line with the main internet uses in other markets.⁴⁰⁰⁴ Most (73%) internet users in South Africa reported that they use the internet for social networking or to look for employment opportunities.⁴⁰⁰⁵ Hootsuite reports social media penetration of 40% in 2018, compared to worldwide average of 45%. This is based on number of active social media users across all platforms compared to total population. For users over 13 years old, social media penetration increases to 53% compared to global average of 58%.

WhatsApp is the largest social network in South Africa with an estimated 16 million users at the end of 2016 (out of a total of 21 million internet users at the time). It is followed closely by Facebook with 15 million active users, YouTube with 8.5 million, Twitter with 7.5 million and LinkedIn with about 5 million.⁴⁰⁰⁶ There is evidence of multi-homing amongst South African internet users, with the Hootsuite reports finding that South Africans have an average of 8.5 accounts per user.

c. Corporate finance for the digital economy

To the best of our knowledge, no systematic study of corporate finance for the digital economy has been conducted. A study by the University of Johannesburg's Centre for Competition, Regulation and Economic Development into barriers to entry in the telecommunications sector explored historical funding for fixed fibre. It found that traditional funders (banks) were generally wary of providing funding to digital start-ups because the rapid pace of change in tech markets increased the risk that the technology they funded would become obsolete prior to realising the requisite return on investment.⁴⁰⁰⁷ An alternative form of funding emerged in terms of a closed network of 'serial technology entrepreneurs' who fund new entrants and associated businesses. In fixed fibre, for example, much of their initial funding came from individual entrepreneurs previously involved in the establishment of firms such as Dimension Data that were amongst the first in South Africa to offer customised and off the shelf digital solutions. These entrepreneurs provided investment to South Africa's first dark fibre provider, Dark Fibre Africa, as well as to firms in the fibre value chain that manufactured inputs, provide trenching services and rolled out lit FTTx services.

One of the most significant corporate players in the digital space is Remgro, a diversified investment holding company with interests in financial services (banking and in-

4004 Digital in 2018: World's Internet Users pass the 4 billion mark. Available at <https://wearesocial.com/uk/blog/2018/01/global-digital-report-2018>. Last viewed on 25/02/2019.

4005 Gillwald, A; Mothobi, O and Rademan, B. 2018. The State of ICT in South Africa. Published by ResearchICTAfrica.net.

4006 Shapshak, T. 2017. South Africa has 21 million internet users, mostly on mobile. Forbes.

4007 Hawthorne, R; Mondliwa, P; Paremoer, T and Robb, G. 2016. Competition, Barriers to Entry and Inclusive Growth: Telecommunications Sector Study. Published by University of Johannesburg.

insurance), healthcare, consumer products, industrial products, infrastructure and media and sport. Remgro's infrastructure portfolio includes a 30% stake Seacom; Africa's first broadband submarine cable system along the Southern and Eastern African coast, a 51% stake in Dark Fibre Africa (through its share in CIV group) and; through CIV Group also holds interests in FTTH provider Vumatel.

Naspers, mentioned above (see 3.a.), is also actively investing in the digital technologies. Naspers recently established a R1.4bn (\$92mn) start-up fund called Foundry, which is aimed at boosting South Africa's tech sector. Its first deal, announced in June 2019, was a R30m (\$2mn) investment in tech start-up 'SweepSouth' an online cleaning services portal.

Other than these, most of the funding seems to come from private equity and development finance institutions. This is particularly evident in the fintech space where former CEO of First National Bank, Michael Jordaan, has been instrumental in setting up data-only mobile network Rain and the digital bank 'Bank Zero' and African Rainbow Capital's Patrice Motsepe has also recently bought a 25% stake in digital bank Tymebank with branches in Pick n Pay, one of the largest national retailers in the country. Other venture capital and private equity investors include Angelhub (of which Michael Jordaan is part), 4Di Capital, and NewGx Capital. Development finance institutions who invest in the technology area include the Industrial Development Corporation, the Technology Investment Agency and the Technology Venture Capital Fund managed by the IDC on behalf of *the dti*.

d. Level of development of the IoT and Industry 4.0.

This is discussed under section 4: the institutional framework for the digital economy

e. Please specify the major digital platforms and their market penetration.

According to data-gathering site Statcounter, Google is the most popular search engine in South Africa with 95.44% market share. Bing, Yahoo and DuckDuckGo lag behind with 3.45%, 0.79% and 0.17% respectively.⁴⁰⁰⁸ In terms of operating systems, the dominance of mobile in accessing the internet is again evident. Android is the largest at 53.49%, followed by Windows with 22.13%, and iOS at 11.47%.⁴⁰⁰⁹

f. What is the level of development of the blockchain economy?

Blockchain development is at an exploratory/early testing stage. Banks, brokerages, insurers, regulators, and other financial services providers are testing ways to harness the benefits of blockchain. The South African Reserve Bank has recently launched an initia

4008 Statcounter. Search Engine Market Share in South Africa, July 2018 – July 2019. Available at <https://gs.statcounter.com/search-engine-market-share/all/south-africa>

4009 Statcounter. Search Engine Market Share in South Africa, July 2018 – July 2019. Available at <https://gs.statcounter.com/os-market-share/all/south-africa/#monthly-201807-201907>

tive called Project Khokha which aims to obtain a better understanding of blockchain (or distributed ledger) technology in the payments system.⁴⁰¹⁰

In 2018, various regulatory entities in the financial sector including the Financial Intelligence Centre (FIC), Financial Sector Conduct Authority (FSCA), National Treasury (NT), South African Revenue Service (SARS) and the South African Reserve Bank (SARB) launched an intergovernmental working group to develop a common understanding amongst fintech regulators on digital developments in financial services, including crypto assets.

16.4. What is the institutional framework for the digital economy?

At the end of 2018, the President constituted a Presidential Commission on the Fourth Industrial Revolution tasked with developing a coordinated national response to the challenges and opportunities associated with the Fourth Industrial Revolution, including the digital economy.⁴⁰¹¹ The Terms of Reference for the Presidential 4IR Commission places significant emphasis on achieving global competitiveness across all key economic sectors but the details of the digital/4IR strategy still need to be developed. The Competition Commissions is not directly represented on the Presidential 4IR panel but has offered its support to the panel and is engaging with the core workstreams.

In addition to the efforts within the Presidency, the Department of Trade, Industry and Competition, through its Industrial Development Think Tank (IDTT) situated at the University of Johannesburg, is developing the elements of a Digital Industrial Policy. The IDTT has explored the effects of 4IR technologies on various sectors including lights manufacturing (plastics), metals and machinery, textiles, automotive manufacturing and retail, amongst others. In retail markets, they have focused on the disruptive effects of the e-commerce platforms emphasising that a (future) national policy should prioritise digital policies that reduce the cost of internet access in order to stimulate online retail.⁴⁰¹²

The IDTT found that 4IR technologies have been incorporated into various sectors of the economy; listing examples such as using additive manufacturing to 'machine' replacement parts for mining equipment, using 'Internet of Things' applications for preventative maintenance and using advanced (tracking and inventory management) technologies in logistics and warehousing. However, adoption and levels of sophistication in using 4IR technologies in production processes remains low.

a) What is protected by property rights (rights to exclude, transfer and monetise)?

- Intellectual property rights in the digital economy

4010 South African Reserve Bank. 2018. The South African Reserve Bank releases the Project Khokha report. Available [here](#).

4011 Ndabeni-Abrahams, S. 05 July 2019. Address by the Minister of Communications & Digital Technologies at the Digital Economy Summit. Available [here](#).

4012 Goga, S and Paelo, A. 2019. An e-Commerce Revolution in Retail? Available [here](#).

- Are there property rights on non-personal/industrial data and algorithms?
- Are there any property rights on personal data?
- Specific regulatory regimes

b) Brief presentation of the current regulatory framework

The telecommunications sector is regulated by the Independent Communications Authority of South Africa (ICASA). Policy is set by the Department of Communications and Digital Technologies which was formed in June 2019 through the consolidation of the former Department of Communication and Department of Telecommunications and Postal Service.

The overarching policy direction for the sector is set out in the 2016 National Integrated White Paper. The White Paper sets broad objectives for addressing the universal access gap, establishes a governance framework for the internet (including principles such as net/search neutrality), sets out the principles for a coherent e-government strategy, and provides a framework for addressing access challenges (including rapid deployment and open access with respect to infrastructure as well as addressing spectrum allocation principles).⁴⁰¹³ Much of the policy direction set out in the White Paper has since been advanced through the release of issue- or sector-specific policies such as the policy direction on unassigned high demand spectrum released in July 2019, and the national e-strategy released in November 2017.⁴⁰¹⁴

The primary piece of legislation governing the telecommunications sector is the Electronic Communications Act, 36 of 2005 (as amended) (ECA) which establishes ICASA. The ECA is seen as pro-competitive providing, for example, for the regulation of interconnection, price regulation, facilities leasing and rapid deployment.⁴⁰¹⁵ It also contains provisions to address market power and promote competition, meaning that the ECA and the Competition Act have overlapping and concurrent jurisdiction with respect to competition in the telecommunications sector. The competition authorities are mandated to intervene where abuse of dominance has occurred, thus providing *ex post* regulation while ICASA is empowered to conduct market reviews and impose forward-looking remedies.⁴⁰¹⁶

c) For access to data (including price/rates regulation)

The Protection of Personal Information Act 4 of 2013 (POPI) was signed into law in November 2013 but many substantive provisions of the law have not yet come into effect.

⁴⁰¹³ The National Integrated White Paper is available [here](#).

⁴⁰¹⁴ The Policy Direction on high demand spectrum is available [here](#) and the national e-strategy, as well as other issue- or sector-specific policies, are available [here](#).

⁴⁰¹⁵ Cull, D. 2009. Key considerations in telecommunications regulation: An overview of the South African position.

⁴⁰¹⁶ Hawthorne, R., Bonakele, T., & Cull, D. (2014). Review of economic regulation of the telecommunications sector. Retrieved from http://www.competition.org.za/s/1400407_EDD-UJ_RECBP_Project-Report_App10_Telecommunications-Sector-Review_Final.pdf

That which has been brought into force concern the appointment of the information Regulator pursuant to which regulations were promulgated in December 2018. *The core of the Act which deals with the safeguarding of personal information pursuant to the constitutional right to privacy while protecting the free flow of information within and across the boundaries of South Africa is expected to come into effect in 2019 .Thereafter firms will be given 1 year to become complaint after it comes into effect.*

POPI provides consumers with the following rights:

- The right to be informed about how their personal data will be used,
- The right to know whether personal data is held by a data collector and to request access to their data,
- The right to have their personal data rectified or erased, specifying that data controllers must respond to such a request within a month,
- The right to restrict data processing on request from the data owner, and
- It specifies that data owners must opt-in to direct marketing programmes.

The right to data portability is not explicitly provided for in POPI.⁴⁰¹⁷

POPI will be enforced by the Information Regulator.

d) For access to algorithms/smart data (including price/rates regulation)

The 2016 National Integrated ICT White Paper, a precursor to legislation, calls for net neutrality on all South African operators and service providers. It provides for ICASA, the telecommunications regulator, to make recommendations on whether new or amended legislation is required to reinforce net neutrality, including guidelines on zero-rating, barring, throttling or paid prioritisation of traffic.⁴⁰¹⁸ These regulations have not yet been developed.

e) Digital consumer protection specific instruments

See the summary of the Information Regulator in section 4(c) above

- Privacy/data protection regulation
- General
- Sector-specific

⁴⁰¹⁷ Eloff, D. 2018. Unscrambling the General Data Protection Regulation. De Rebus. Available [here](#).

⁴⁰¹⁸ National Integrated ICT Policy White Paper. September 2016. Available [here](#).

16.5. Institutional architecture

a. Is there a digital platforms regulator?

No, South African has no digital platforms regulator. Currently the regulatory framework does not provide powers to ICASA, the telecommunications sector regulator, to regulate digital platforms. Digital platform players mainly sit “over-the-top” and are not licensees of the telecommunications authority.⁴⁰¹⁹

16.6. PART B: COMPETITION REGULATION

What is the role of the competition authority (authorities)?

- What is the role of courts (generalist or specialised) in enforcing competition law and regulatory (structure, price and access regulation) ?
- South Africa has a specialist system of courts in that the court of first instance is the Competition Tribunal staffed by lawyers and economists ,Any a referral from the Competition Commission , the investigation agency ,three members decide the case. There is a direct appeal as of right to the Competition Appeal Court which is staffed by \ judges of the High Court appointed on the basis of their expertise in the field. From this court there is a further appeal with its leave to the Constitutional Court.

There is no formal Interaction between competition law and regulation in the digital economy context in particular

- Competition authorities and general or sector-specific access and pricing regulators
- Competition authorities and data protection agencies
- Competition authorities and digital consumer protection agencies (indicate if the competition authority is also functioning as a consumer protection regulator)

Describe the competition law activity related to the digital economy since 2001 (please include a summary and a compilation of the various individual fiches prepared for each case. Please include information on market definition, theories of harm)

There are three areas where competition law has held implications or future implications for the digital economy ; cartels / collusion , abuse of dominance and mergers.

4019 E-mail communication with ICASA, 12 August 2019

16.6.1. Cartels:

The definition of cartel behavior / collusion is set out in s4 of the Competition Act of 1998 , as follows:

"4 (1) An agreement between, or a concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if-

(b) it involves any of the following restrictive horizontal practices:

(i) directly or indirectly fixing a purchase or selling price or any other trading condition; (ii) dividing markets by allocating customers, suppliers, territories, or specific types of goods or services; or (iii) collusive tendering." [See Section 4 (1) (b) of the Competition Act]

The prohibitions on collusion are triggered by certain types of conduct rather than by outcomes themselves. For example, the question is whether the conduct (agreement or a concerted practice or a decision) of firms (in a horizontal relationship) in relation to, for example, price is a result of an agreement or concerted practice or decision. If not, there is no violation. What then is an agreement?

The Competition Act defines an agreement "in relation to a prohibited practice, to include a contract, arrangement or understanding, whether or not it is legally enforceable".[See Section 1 (ii) of the Competition Act.]

A concerted practice arises from "cooperative or coordinated conduct between firms, achieved through direct or indirect contact that replaces their independent action but which does not amount to an agreement". [See Section 1 (vi) of the Competition Act.] Therefore, a concerted practice may inter alia arise out of coordination which becomes evident from the conduct of firms in the market. The idea that a concerted practice may be inferred from behaviour might seem to suggest, at first glance, that interdependent oligopoly behaviour is prohibited. However, oligopoly behaviour does not establish a concerted practice unless, given the nature of the market, the behaviour of the firms concerned cannot be explained other than by concerted behaviour. In any case, many prosecuted cartels have involved agreement.

There is no prosecuted case in South Africa involving blockchain or algorithmic collusion.

However there are two ongoing investigations involving the use of digital instruments by companies in the allocation of work. These are referred to here as the 'Bluspec cases' and the 'Glass case'.

- The Bluspec investigation looks at the potential for market allocation downstream where the vertically integrated company, Bluspec, competes with other players who happen to be subscribers to its upstream software. The software concerned could be using algorithms to allocate work. [allegation]
- The Glass case looks at the use of algorithms (Digi Call Administration centers) to fix prices and facilitate collusion between two autoglass fitment companies.

At the time of writing these investigations by the Competition Commission are very new ;hence there is nothing further to report at this stage.

16.6.2. Abuse of dominance

Section 7 of the Competition Act provides the threshold inquiry for establishing the existence of a dominant firm : It provides: A firm is dominant in a market if –(a) it has at least 45% of that market;(b) it has at least 35%, but less than 45%, of that market, unless it can show that it does not have market power; or(c) it has less than 35% of that market, but has market power .Market power is defined in the Act as follows: e power of a firm to control prices, or to exclude competition or to behave to an appreciable extent independently of its competitors , customers or suppliers.

Section 8 provides for the various abuses of dominance .There is a clear provision in respect of excessive pricing . The South African regime for excessive pricing adapted the test in United Brands. However following the decision of the Competition Appeal Court in Sasol Chemical Industries Ltd v The Competition Commission 2015(5)SA471(CAC) where the Commission failed to prove its case based upon the United Brands type test the law was amended in 2018. While it remains a case of abuse of dominance for a dominant firm to charge an excessive price for a good or service , the amendment has changes the test as is shown by way of the following change to s8 of the Act : If there is a prima facie case of abuse of dominance because the dominant firm charged an excessive price, the dominant firm must show that the price was reasonable. Any person determining whether a price is an excessive price must determine if that price is higher than a competitive price and whether such difference is unreasonable, determined by taking into account all relevant factors, which may include—(a)the respondent's price-cost margin, internal rate of return, return on capital invested or profit history;(b)the respondent's prices for the goods or services—(i) in markets in which there are competing products;(ii) to customers in other geographic markets;(iii) for similar products in other markets; and(iv) historically;(c)relevant comparator firm's prices and level of profits for the goods or services in a competitive market for those goods or services;(d)the length of time the prices have been charged at that level;(e)the structural characteristics of the relevant market, including the extent of the respondent's market share, the degree of contestability of the market, barriers to entry and past or current advantage that is not due to the respondent's own commercial efficiency or investment, such as direct or indirect state support for a firm or firms in the market .There have been no cases dealing with excessive pricing within the context of the digital economy.

There is provision for an essential facility doctrine .S8(b) of the Act provides therefor .An essential facility is defined thus essential facility' means an infrastructure or resource that cannot reasonably be duplicated, and without access to which competitors cannot reasonably provide goods or services to their customers;. There has been reference to this doctrine as set out in the description of case law although it has played no significant role in any case which has been litigated to completion.

There are provisions dealing with exclusionary practices, which is defined thus: an act that impedes or prevents a firm entering into, or expanding within, a market. As is illustrated in the case section, this doctrine has been employed in the digital sector.

16.6.3. Mergers

Apart from a specific public interest provision which has not played a significant role with regard to mergers, the provision dealing with mergers has its pedigree in the EU legislation: To the extent relevant it reads thus:

(1) Whenever required to consider a merger, the Competition Commission or Competition Tribunal must initially determine whether or not the merger is likely to substantially prevent or lessen competition, by assessing the factors set out in subsection (2), and –(a) if it appears that the merger is likely to substantially prevent or lessen competition, then determine –(i) whether or not the merger is likely to result in any technological, efficiency or other pro-competitive gain which will be greater than, and off-set, the effects of any prevention or lessening of competition, that may result or is likely to result from the merger, and would not likely be obtained if the merger is prevented; and (ii) whether the merger can or cannot be justified on substantial public interest grounds by assessing the factors set out in subsection (3); or (b) otherwise, determine whether the merger can or cannot be justified on substantial public interest grounds by assessing the factors set out in subsection (3).

(2) When determining whether or not a merger is likely to substantially prevent or lessen competition, the Competition Commission or Competition Tribunal must assess the strength of competition in the relevant market, and the probability that the firms in the market after the merger will behave competitively or co-operatively, taking into account any factor that is relevant to competition in that market, including –(a) the actual and potential level of import competition in the market; (b) the ease of entry into the market, including tariff and regulatory barriers; (c) the level and trends of concentration, and history of collusion, in the market; (d) the degree of countervailing power in the market; (e) the dynamic characteristics of the market, including growth, innovation, and product differentiation; (f) the nature and extent of vertical integration in the market; (g) whether the business or part of the business of a party to the merger or proposed merger has failed or is likely to fail; and (h) whether the merger will result in the removal of an effective competitor.

(3) When determining whether a merger can or cannot be justified on public interest grounds, the Competition Commission or the Competition Tribunal must consider the effect that the merger will have on –(a) a particular industrial sector or region; (b) employment; (c) the ability of small businesses, or firms controlled or owned by historically disadvantaged persons, to become competitive; and (d) the

ability of national industries to compete in inter-national mark.

The following cases concerned merger case law .

a. Takealot/Kalahari (2015)

This merger involved two of the largest online retailers in South Africa. The Commission approved the proposed merger whereby Takealot Online (Pty) Ltd intended to acquire Kalahari.com with conditions related to public interest (employment). There was a horizontal overlap in relation to online retailing of consumer goods and products. Combined market shares were high, however, upon assessing customer purchasing patterns *at the time*, the Commission found that brick and mortar retailers constrain online retailers to a great extent and more so, *at the time*, most of the customers were once-off purchasers. The merger raised public interest concerns in respect of employment. To address the employment concerns, the Commission imposed a condition that no more than 200 employees will be retrenched as a result of the merger and that a training/re-skilling fund be established to support any retrenched employees.

b. Microsoft/LinkedIn (2016)

This was a global merger in digital markets, particularly social networking and off-premise (cloud) services. In South Africa, much of the focus was on whether there could be any exclusionary conduct by Microsoft especially on off premise services (cloud). The investigation revealed there were unlikely to be incentives for such as strategy. Issues relating to big data arose in other jurisdictions especially in Europe, but the merger was approved unconditionally because both Microsoft and LinkedIn generate relatively low revenues in South Africa.

c. Facebook/WhatsApp (2015)

The transaction was not notifiable in South Africa because WhatsApp did not generate any revenue in the country. The merger raised some issues relating to big data globally.

d. MIH / Autotrader (2017)

MIH is part of Naspers, South Africa's largest e-commerce and advertising platform provider. MIH acquired Autotrader, a specialist classified online vehicle advertising platform. The investigation revealed that whilst the merged entity would command a significant market share post-merger and that barriers to entry were high, the merged entity would continue to face constraints from several credible providers of online automotive advertising platforms. Moreover, it appeared that customers exercised appreciable countervailing power in that they could negotiate pricing and could easily switch from one service provider to another. The merger was approved unconditionally.

e. MIH (Naspers)/We Buy Cars (Prohibition)

The Commission has recommended to Competition Tribunal (Tribunal) that the proposed acquisition of WeBuyCars (Pty) Ltd (WeBuyCars) by MIH eCommerce Holdings (Pty) Ltd (MIH), an entity of the Naspers Group, be prohibited. MIH is to acquire 60% of WeBuyCars. MIH is mainly an investment holding company and does not itself supply any products or services in South Africa. It has investments in OLX and the Naspers' subsidiary, Car Trader, which operates as AutoTrader. Although the Commission found that the proposed transaction does not present any competitor (horizontal) overlap in South Africa as the Naspers Group is not active in the buying and selling of cars, it found that the Naspers Group through Frontier Car Group Inc (FCG) has been anticipating entering the South African market for the wholesale and online buying of used cars in competition with WeBuyCars. These entry plans were thwarted directly as a result of the merger.

Given this potential entry, the Commission assessed if the proposed merger will result in the removal of potential competition in South Africa as Naspers Group had plans to enter the South Africa niche wholesale buying of used car market segment utilising the instant cash model and, in so doing, compete directly against WeBuyCars. The Commission also notes that there is a vertical (supplier-customer relationship) overlap because Naspers Group owns and operates online classified automotive advertising platforms, e.g OLX and Auto Trader, and WeBuyCars utilises these platforms to either sell or purchase vehicles. Given the supplier-customer relationship overlap, the Commission considered whether the merger will result in the exclusion of the competitors of WeBuyCars and or AutoTrader. With respect to the removal of potential competition concern, the Commission is of view that the proposed transaction will result in the removal of Naspers Group (FCG) as a potential effective competitor to WeBuyCars in the niche segment of wholesale and online buying of used cars using an instant cash model from the public and the consequent selling to dealers and others. This is the market segment that is currently dominated by WeBuyCars.

Further, the proposed merger will likely result in a substantial lessening of competition through exclusion. With respect to exclusion, the Commission found that there are numerous ways in which Naspers can harness the complementarities between WeBuyCars and AutoTrader and/or OLX to the exclusion of effective competition against WeBuyCars' rivals as well as other online platforms. WeBuyCars is a large and dominant wholesale and online buyer of used cars from the public. On the other hand, AutoTrader is the largest online classified platform and generates significant customer traffic such that it is a key and important online platform for traditional used car dealers seeking to sell their car stock. Thus, it is the view of the Commission that the merged entity will have the ability to leverage its significant AutoTrader position as well as the OLX platform to exclude rivals of WeBuyCars.

Furthermore, the Commission finds that WeBuyCars will likely entrench its dominant position in the purchasing of used cars side, which dominance will also likely translate into dominance on the sell-side since if WeBuyCars can dominate the second hand cars stock in the market.

In addition, Naspers' platforms namely OLX and AutoTrader are likely to further entrench their respective positions in on-line advertising.

The Commission is concerned that the proposed merger would result in the foreclosure of other traditional dealers, that is, rivals of WeBuyCars on the sell side. This is because AutoTrader is a significant platform on which many traditional dealers advertise their cars and has the ability and incentive to offer preferential treatment towards WeBuyCars. Overall, the proposed transaction is likely to substantially prevent or lessen competition in the relevant markets and result in used car customers paying higher prices in future than they would otherwise pay in a competitive environment.

16.7. Conclusion

In July 2019 the Competition Commission reflected on the current position regarding the digital economy and the regulatory framework. It concluded with a number of accurate assessments.

On merger control there is a concern that significant acquisitions of start up companies may not trigger the usual thresholds for merger notification given that these are typically turnover, or asset based. For instance, Facebook/WhatsApp (2015) was not notifiable in South Africa because WhatsApp did not generate any revenue in the country. While South Africa does have the power to investigate small mergers even after they have been completed, these do not need to be notified to the authorities and thus this may raise additional challenge in dynamic digital markets.

On market conduct, the expert report for the EU on competition law in digital markets raises the point that for dominant digital firms there might need to be a reverse onus for them to demonstrate why certain conduct is net efficiency enhancing and not restrictive of new entry. This is not the case currently in South African law as it is incumbent upon the authority to demonstrate exclusionary practices.

Concerns have also been raised across a number of sectors about the fact that the current regulatory framework does not apply to new, disruptive technology, which gives these firms an unfair competitive advantage over regulated incumbents. For instance, the current regulatory framework for land transport in South Africa does not specifically cater for e-hailing firms. Traditional metered taxis have raised the concern that area restrictions and price regulation applied to their business model is not applied to e-hailing firms, placing the traditional model at a competitive disadvantage. Similar concerns have been raised by broadcasters where streaming services such as Netflix are not subject to local content requirements and local procurement practices.

A further area of unfair competition relates to the taxation regime that domestic firms are subject to relative to global digital firms. Whilst this issue is not necessarily new as multinational taxation has been the subject of tax reforms and developments in transfer pricing, the digital economy has thrown up new challenges. In particular, where firms are located abroad, and the sales transaction occurs online with no physical movement

of goods. This situation also permits digital firms to exploit tax havens to lower their overall tax rate, enabling them to out-compete domestic digital rivals too.

The Commission noted that these types of challenges indicate that a process of regulatory review is required if South Africa is to catch up with the shifts to the digital age. Some of these reviews are already underway, such as changes to tax laws as well as the National Land Transport Act. Whilst the answer in some cases may be to bring the digital firms under the same regulatory regime (e.g. in taxation), in other cases the shifts have revealed the inadequacy of the current regulatory regime and the need to move to a relaxation in regulation (e.g. metered taxis). The Commission concluded that this review needs to be a thoughtful process and one which should not be hastily undertaken.

Annex 1: ZA Cases Index

Case No.	The name of the case/parties	Year of the case	Date (month and day) (if available)	Name of the authority adopting the decision	Type of the authority adopting the decision	First instance or appeal	Industry(ies) affected / sector of activity (products) (NACE codes) It may be more than one in each case	level(s) of the digital value chain involved	Type of infringement investigated (for antitrust cases)	Reasons for opening proceedings (for antitrust cases only).	Reference to the individual file
ZA1	CTP Limited and the Digital Disc Manufacturing and Replicating Business of CDT	2016	11-May	Competition Tribunal	Court	Appeal	C18.2.0 – Reproduction of recorded media	Data storage or data-warehousing	N/A	N/A	2016 M CTP Limited
ZA2	Dirk Lucas vs Microsoft South Africa and others (2009)	2009	No information available	Competition Commission	Competition Authority	First instance	J.62.01 – Computer programming activities J.58.2 – Software publishing J.63.12 – Web portals	Data processing	Abuse of a dominant position	Complaint	2009 A Micro-soft I
ZA3	Entelligence Ltd ("Entelligence") vs Google South Africa	2009	No information available	Competition Commission	Competition Authority	First instance	M73.1.1 – Advertising agencies	Data commercialization and monetization	Abuse of a dominant position	Complaint	2009 A Google
ZA4	Metered Taxi Industry vs Uber	2015	No information available	Competition Commission	Competition Authority	First instance	H49.3.2 – Taxi operation	Data commercialization and monetization	Abuse of a dominant position	Complaint	2015 A Uber
ZA5	MIC Investment Holdings (Pty) Ltd (MIC) and Metrofile Holdings Limited (Metrofile)	2017	28/06	CAC	Court	First instance	J63.1.1 – Data processing, hosting and related activities	Data storage or data-warehousing	N/A	N/A	2017 M MIC Investment Holdings (Pty) Ltd
ZA6	Venfin Media Investment Pty LTD and Mainstreet 754 Pty LTD	2011	16/11 (reasons issued Feb 1, 2012)	CAC	Court	First instance	M73.1 – Advertising	Data commercialization and monetization	N/A	N/A	2011 M Venfin Media Investment Pty LTD
ZA7	Remgro Limited and Venfin Limited	2009	4-Nov	CAC	Court	First instance	J63.1.2 – Web portals	Data commercialization and monetization	N/A	N/A	2009 M Remgro Limited
ZA8	Datacentrix And DG Store (SA)	2018	1-Mar	CAC	Court	First instance	J63.1 – Data processing, hosting and related activities; web portals	Data storage / infrastructure or data-warehousing	N/A	N/A	2018 M Datacentrix
ZA9	Dimension Data And Hatch Investment	2017	5-Oct	CAC	Court	First instance	J62.0 – Computer programming, consultancy and related activities	Data processing	NA	N/A	2017 M Dimension Data
ZA10	Dimension Data And MWEB Connect	2017	17-May	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data sharing and communication	N/A	N/A	2017 M Dimension Data II

Case No.	The name of the case/parties	Year of the case	Date (month and day) (if available)	Name of the authority adopting the decision	Type of the authority adopting the decision	First instance or appeal	Industry(ies) affected / sector of activity (products) (NACE codes) It may be more than one in each case	level(s) of the digital value chain involved	Type of infringement investigated (for antitrust cases)	Reasons for opening proceedings (for antitrust cases only).	Reference to the individual file
ZA11	Dimension Data Middle East and Britehouse Holdings	2015	26-Aug	CAC	Court	First instance	J62.0 – Computer programming, consultancy and related activities	Data processing	N/A	N/A	2015 M Dimension Data Middle East
ZA12	Dimension Data Mweb	2014	18-Dec	CAC	Court	First instance	J61.1.0 – Wired telecommunications activities	Data sharing and communication	N/A	N/A	2014 M Dimension Data Mweb
ZA13	Dimension Dataflo	2014	3-May	CAC	Court	First instance	J63.9 – Other information service activities	Data processing	N/A	N/A	2014 M Dimension Data Middle East and Africa (Pty) Ltd
ZA14	MB Technologies and Securedata	2014	26-Feb	CAC	Court	First instance	J62.0.1 – Computer programming activities	Data processing	N/A	N/A	2014 M MB Technologies
ZA15	Pinnacle and Data-centrix	2013	30-Oct	CAC	Court	First instance	J62.0.3 – Computer facilities management activities	Data processing	NA	N/A	2013 M Pinnacle
ZA16	Telkom and CC	2012	13-Feb	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	Abuse of a dominant position	Complaint	2012 A Telkom
ZA16	CC and Telkom	2012	7-Aug	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	Abuse of a dominant position	Complaint	2012 A Telkom
ZA17	Dimension Data and Telkom	2012	7-Feb	CAC	Court	First instance	J63.1.1 – Data processing, hosting and related activities	Data processing	N/A	N/A	2012 M Dimension Data III
ZA18	Hitachi and Shoden	2011	12.14	CAC	Court	First instance	J63.1.1 – Data processing, hosting and related activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2011 M Hitachi
ZA19	Bventure and Vox	2011	12-Oct	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data sharing and communication	N/A	N/A	2011 M Bventure
ZA20	MTN Group Limited and Newshelf 664 (Pty)	2009	11-Mar	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2009 M MTN Group Limited

Case No.	The name of the case/parties	Year of the case	Date (month and day) (if available)	Name of the authority adopting the decision	Type of the authority adopting the decision	First instance or appeal	Industry(ies) affected / sector of activity (products) (NACE codes) It may be more than one in each case	level(s) of the digital value chain involved	Type of infringement investigated (for antitrust cases)	Reasons for opening proceedings (for antitrust cases only).	Reference to the individual file
ZA21	Mobile Telephone Network Holdings (Pty). Verizon South Africa (Pty) Ltd Primary target firm and Allied Technologies Limited (Intervening party)	2008	1/8/19	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2008 M Mobile Telephone Network Holdings (Pty)
ZA22	Hewlett Packard Company and Electronic D	2008	14-Aug	CAC	Court	First instance	J62.0.9 – Other information technology and computer service activities	Data processing	N/A	N/A	2008 M Hewlett Packard Company
ZA23	Neotel (Pty) Ltd and Transtel Telecoms	2008	19-Mar	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2008 M Neotel (Pty) Ltd
ZA24	Barmac Properties (Pty) Ltd and the Tele	2006	17-Jan	CAC	Court	First instance	C20.6.0 – Manufacture of man-made fibres	Data storage / infrastructure or data-warehousing	N/A	N/A	2006 M Barmac Properties (Pty) Ltd
ZA25	Friedshelf 649 (Pty) Ltd and Ellerine Br	2006	24-Mar	CAC	Court	First instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2006 M Friedshelf 649 (Pty) Ltd
ZA26	Datatec Limited and Affinity Logic Holdi	2002	12-Apr	CAC	Court	First instance	J62.0.9 – Other information technology and computer service activities	Data processing	N/A	N/A	2002 M Datatec Limited
ZA27	Microsoft and Nokia	2014	19-Feb	CAC	Court	First instance	C26.3.0 – Manufacture of communication equipment	Data storage / infrastructure or data-warehousing	N/A	N/A	2014 M Microsoft II
ZA28	Takealot and Kalahari	2015	No information available	Competition Commission	Competition Authority	first instance	G47.9.1 – Retail sale via mail order houses or via Internet	Data commercialization and monetization	N/A	N/A	2015 M Takealot
ZA30	Vodacom and IoT.	2016	No information available	Competition Commission	Competition Authority	first instance	J61.2.0 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	N/A	2016 M Vodacom * summary provided by SA team
ZA31	MIH (Naspers)/We Buy Cars	No information available	No information available	CAC	Competition Authority	first instance	G45.1.1 – Sale of cars and light motor vehicles G47.9.1 – Retail sale via mail order houses or via Internet	Data commercialization and monetization	N/A	N/A	No summary provided. Info. Found in country report.

Case No.	The name of the case/parties	Year of the case	Date (month and day) (if available)	Name of the authority adopting the decision	Type of the authority adopting the decision	First instance or on appeal	Industry(ies) affected / sector of activity (products) (NACE codes) It may be more than one in each case	level(s) of the digital value chain involved	Type of infringement investigated (for antitrust cases)	Reasons for opening proceedings (for anti-trust cases only).	Reference to the individual fiche
ZA32	MIH and Autotrader	2017	No information available	Competition Commission	Competition Authority	first instance	G45.1.1 – Sale of cars and light motor vehicles G47.9.1 – Retail sale via mail order houses or via Internet	Data commercialization and monetization	N/A	N/A	No summary provided. Info. Found in country report.
ZA33	Facebook and WhatsApp	2015	No information available	Competition Commission	Competition Authority	first instance	J63.1 – Data processing, hosting and related activities; web portals J63.1.1 – Data processing, hosting and related activities J63.1.2 – Web portals	Data sharing and communication	N/A	N/A	No summary provided. Info. Found in country report.
Market Inquiries											
ZA29	Market inquiry into data service costs	2017 – 2019	Aug-17	Competition Commission	Competition Authority	N/A	J61.2 – Wireless telecommunications activities	Data storage / infrastructure or data-warehousing	N/A	Sector inquiry	2017 I Data service costs

Source: Author's review of publicly available cases

Annex I^{4020*}: Private Governance of Digital Platforms: Case Studies

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1.1. Google/Alphabet^{4021*}

1.1.1. Nature of the competitive game

The search engine is probably Google's most well-known product and can be seen as the foundation of the company's ecosystem. Google achieved the leading market position in the global search engine market around a year after the search service left the testing phase in 1999 and maintained this position since then. Google uses its bottleneck position in the digital business to establish its services and products in many other business fields. This may happen on a technological way, e.g. by interlocking various Google services such as Google Maps, Google Mail or Google Shopping with the Google Search interface. But the Google search engine and the data it collects are also an essential part of Google Ads, through which Google generates about 85% of its revenue. Google has been selling advertisements associated with search keywords since 2000 (even though the founders originally opposed this idea). The revenue generated by the advertisement section allows Google to penetrate new markets by acquiring companies, talents and innovative products. Alike other digital platform markets Google's dominant market position is consolidated by network effects, which make it extremely hard for other companies to penetrate the search engine market and thus challenge Google's bottleneck position.

1.1.1.1. Corporate Organisation Data

While the name Google is still widely used to describe the entire company, the Google LLC has been a subsidiary of the Alphabet Inc. since corporate restructuring that took place in 2015. This case study will explore the complex corporate structure of the Alphabet Inc. to provide a better understanding of Google's position as Alphabet's core business within its organizational framework.

4020 * This is an Annex for Chapter 3.

4021 * Tobias Kleinschmit.

The Legal Structure of Alphabet Inc. After the Reorganization in 2015

In August 2015, the Google Inc. announced plans to create the Alphabet Inc. as a new public holding company.⁴⁰²² The implementation of this holding company took place in October 2015, when the Maple Technologies Inc. (Merger Sub), a direct wholly owned subsidiary of Alphabet and an indirect, wholly owned subsidiary of Google was merged with the Google Inc., with Google surviving as a direct, wholly owned subsidiary of Alphabet.⁴⁰²³ Shares issued and outstanding prior to the reorganization were automatically converted into a corresponding share of Alphabet stock with equivalent attributes.⁴⁰²⁴ The corporate reorganization was completed in 2017, when Alphabet inserted the XXVI Holdings Inc. into the vertical ownership chain by transferring ownership of Google to XXVI Holdings.⁴⁰²⁵ Thereafter, Google was converted from a corporation into a limited liability company, the Google LLC.⁴⁰²⁶ Under the new corporate organization, the Google business includes Search, Ads, Maps, YouTube, Android, Google for Work, Apps for Work and the related technical infrastructure while the other businesses are legally separated and managed independently from the Google businesses.

Sibling Companies and Fields of Activity

As aforementioned, the 2015-2017 restructuring process has led to the transformation of many former Google subsidiaries into independently managed indirect Alphabet subsidiaries. These companies, often referred to as the *other bets*, are active in a variety of business fields distinct from the original Google business. Alphabets subsidiaries include Calico, Chronicle, Dandelion, DeepMind, GV, Capital G, X, Google Fiber, Jigsaw, Sidewalk Labs, Verily, Waymo, Wing, Loon and Makani. As the Holding Company of these *other bets*, the XXVI Holdings Inc. is not obliged to disclose its subsidiaries, this list may be incomplete. The following section will touch upon the companies' business models and point towards potential interlocks with the core business of Google.

The Calico LLC is a research and development entity investigating technologies that aim to increase the human life span.⁴⁰²⁷ It was founded in September 2013. Calico has not produced any known medical or biotechnological products as of 2018.⁴⁰²⁸ The LLC holds research partnerships with several pharmaceutical companies, organisations and

4022 Google Inc. SEC 8-K Filing, 2015, <https://www.sec.gov/Archives/edgar/data/1288776/000128877615000039/a20150810form8-k.htm>.

4023 Google Inc. SEC 8-K Filing, 2015, <https://www.sec.gov/Archives/edgar/data/1288776/000128877615000039/a20150810form8-k.htm>.

4024 Google Inc. SEC 8-K Filing, 2015, available at <https://www.sec.gov/Archives/edgar/data/1288776/000128877615000039/a20150810form8-k.htm>.

4025 Google FCC 603 Filing, 2017, available at <https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp;ATTACHMENTS=GnpHcL0N1HQtpY1t1xSnsJ6JB8px6GD1nc0jM9Qc9MmbvPxx0HyP!>.

4026 Google FCC 603 Filing, 2017, available at <https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp;ATTACHMENTS=GnpHcL0N1HQtpY1t1xSnsJ6JB8px6GD1nc0jM9Qc9MmbvPxx0HyP!>.

4027 <https://www.calicolabs.com>.

4028 B. Womack, Google Creates New Company Called Alphabet, Restructures Stock (August 10, 2015), available at <https://www.bloomberg.com/news/articles/2015-08-10/google-to-adopt-new-holding-structure-under-name-alphabet->

university research units, including the AbbVie Inc., the 2M LLC, The University of Texas Southwestern Medical Center, The Broad Institute of MIT and Harvard, and QB3 (which belongs to the University of California).

The Chronical LLC was originally a project launched by Alphabet's moonshot factory X in 2016 and became an independent company in 2018. Chronical is composed out of a cybersecurity intelligence and analytics platform and VirusTotal, which is a company that develops malware intelligence software and that was acquired by Google in 2012.⁴⁰²⁹

The Dandelion Energy Inc. offers geothermal heating and cooling systems to private homeowners.⁴⁰³⁰ Like Chronical, Dandelion has been a research project of the research lab X until it became an independent company in 2017.⁴⁰³¹

DeepMind Technologies Ltd. is an artificial intelligence firm that develops advanced algorithms capable of machine learning. The company was founded in 2010 and has been acquired by Google in 2014.⁴⁰³² Facebook unsuccessfully attempted to acquire the company in 2012 according to reports.⁴⁰³³ The company was held to be one of Google's main competitors in the area of artificial intelligence. Allegedly, Larry Page has led the acquisitions negotiations himself. DeepMind developed a neural network that mimics human behavior in playing (video) games and made headlines after beating the world champion in Go in 2016. It has thereafter turned to other research field, such as protein structure prediction (AlphaFold)⁴⁰³⁴ and neural networks for generating human-like voices by waveform modeling (WaveNet). WaveNet has been used in the Google Assistant and Google's text-to-speech product Cloud Text-to Speech.⁴⁰³⁵ The Algorithm has furthermore been used to the personalized app recommendations of Google Play⁴⁰³⁶ and the energy conserving Android Pie features Adaptive Battery and Adaptive Brightness.⁴⁰³⁷ DeepMind technologies have also been used in the health sector. In corporation with the NHS, the company developed programs that analyze medical data and warn medical staff about changes and alerting information in this data.⁴⁰³⁸ A data-sharing agreement

4029 S. Gillet: Give GOOD the Advantage (January 24 2018), available at <https://medium.com/chronicle-blog/give-good-the-advantage-75ab2c242e45>.

4030 <https://dandelionenergy.com>.

4031 K. Yurieff: Google's new startup uses energy from your lawn to heat your home (July 7 2017), available at <https://money.cnn.com/2017/07/07/technology/google-dandelion/index.html>

4032 S. Gibbs: Google buys UK artificial intelligence startup Deepmind for £400m (January 27 2014), available at <https://www.theguardian.com/technology/2014/jan/27/google-acquires-uk-artificial-intelligence-startup-deepmind>.

4033 A Efrati: Google Beat Facebook for DeepMind, Creates Ethics Board (January 26, 2014), available at <https://www.theinformation.com/articles/Google-beat-Facebook-For-DeepMind-Creates-Ethics-Board?>.

4034 I. Sample, Google's DeepMind predicts 3D shapes of proteins (2 December 2018), available at <https://www.theguardian.com/science/2018/dec/02/google-deepminds-ai-program-alphafold-predicts-3d-shapes-of-proteins>

4035 I. Sample, Google's DeepMind predicts 3D shapes of proteins (2 December 2018), available at <https://www.theguardian.com/science/2018/dec/02/google-deepminds-ai-program-alphafold-predicts-3d-shapes-of-proteins>

4036 J. Novet: Google is finding ways to make money from Alphabet's DeepMind A.I. technology (March 31 2018), available at <https://www.cnbc.com/2018/03/31/how-google-makes-money-from-alphabets-deepmind-ai-research-group.html>.

4037 <https://deepmind.com/blog/deepmind-meet-android/>.

4038 C. Hopping: DeepMind announces second NHS partnership (December 23 2016), available at <http://www.itpro.co.uk/public-sector/27833/deepmind-announces-second-nhs-partnership>.

between DeepMind and the Royal Free London NHS Foundation Trust has been subject to wide criticism, as DeepMind obtained sensitive medical data about an estimated 1.6 million patient treated in hospitals run by the trust.⁴⁰³⁹ Other health related features concentrate on the analysis of body scans for potential diseases or cancerous cells.⁴⁰⁴⁰

- **The GV Management Company LLC (respectively the GV UK Management Company Ltd)** is Alphabet's venture capital investment subsidiary, which was founded as Google Ventures in 2009. GV provides venture capital and operational support in design and product management, marketing, engineering and recruiting.⁴⁰⁴¹ GV claims to have invested in over 350 companies including competitors such as Uber, with \$3.4 billion under management.⁴⁰⁴²
- **The CapitalG Management Company LLC** is a private equity firm that was founded as Google Capital in 2013.⁴⁰⁴³ Capital G provides growth capital to technology companies and is allegedly return-driven.⁴⁰⁴⁴ Like Alphabet's Venture Capital arm, the support is not solely financial, but comes along with operational support by Alphabet.⁴⁰⁴⁵ A complete list of investments is available on the CapitalG webpage.⁴⁰⁴⁶
- **The X Development LLC** is Alphabet's research and development facility. The company was founded in 2010 and operates several early stage research projects of Alphabet, of which many remain undisclosed. As aforementioned, a number of Alphabet's now independent subsidiaries have started as projects of X, including Waymo, Dandelion, Loon, Wing, Makani.
- **The Google Fiber Inc.** provides fiber-to-the-premises services in form of broadband internet and IPTV to a number of cities in the United States. It is part of Alphabet's access division, which also includes OneHub, Project Link, RailTel Partnership, Project Sunroof and Project Titan. As Google's business remains focused on digital services, Fiber has been described as an attempt to coerce existing internet providers to improve the internet speed by exercising competitive pressure.⁴⁰⁴⁷
- **Jigsaw** was founded as *Google Ideas* in 2010 and develops cyber security solutions. Among Jigsaw projects is *Perspective*, a learning algorithm identifying toxic comments on platforms, which is used by the Guardian, the Economist, the New

4039 H. Hodson: Revealed: Google AI has access to huge haul of NHS patient data (April 29 2016), available at <https://www.newscientist.com/article/2086454-revealed-google-ai-has-access-to-huge-haul-of-nhs-patient-data/>.

4040 C. Baraniuk: Google's DeepMind to peek at NHS eye scans for disease analysis (July 5 2016), available at <https://www.bbc.com/news/technology-36713308>.

4041 F. Manjoo: Google's Creative Destruction (April 4 2012), available at <https://www.fastcompany.com/1826876/googles-creative-destruction>.

4042 <https://www.gv.com>; A complete list of investments is available on the GV webpage.

4043 <https://capitalg.com/about/>.

4044 <https://capitalg.com/about/>.

4045 <https://capitalg.com/about/>.

4046 <https://capitalg.com/companies/>.

4047 D. Wakebayashi: Google Curbs Expansion of Fiber Optic Network, Cutting Jobs (October 26, 2016), available at <https://www.nytimes.com/2016/10/26/technology/google-curbs-expansion-of-fiber-optic-network-cutting-jobs.html>.

York Times and Wikipedia.⁴⁰⁴⁸ This software could be of high interest to important competitors in the digital business field such as Facebook and Twitter. Jigsaw furthermore includes an anti-distributed-denial-of-service (DDoS) software (*Project Shield*), the VPN tool *Outline* as well as a number of other cybersecurity and anti-cybercrime services.

- The **Sidewalk Labs LLC** was founded in 2015. The company is active in the field of urban planning and city infrastructure, advancing the concept of smart cities. Sidewalk Labs' focus lies on self-driving technology and digital navigation tools as well as low-cost and low-space real estate solutions. The Sidewalk Labs have launched the project Sidewalk Toronto in corporation with municipal and government entities, which aims to create a model of the smart city in an area of Toronto. Wake-bayashi
- The **Verily LLC** was founded as the *Google Life Sciences* division of X and became an independent company in 2015. Verily is active in research and development of biotechnology. It's projects include the Baseline study, in which verily collected genetic material to create a picture of a healthy human, surgical robotics and smart contact lenses. It has formed cooperations with different companies such as Johnson & Johnson, GlaxoSmithKline and Dexcom.
- The **Waymo LCC** was a project by X and became an independent subsidiary of Google in 2016. The company develops self-driving technology and is competing with companies such as Tesla, Uber and Navya.
- The **Wing LCC** was an X project until it became an independent company in 2018. The company develops delivery drones. Wing started with test deliveries in January 2019 and received an Air operator certificate from the FAA to operate as an airline in the US as the first drone delivery company in April 2019.⁴⁰⁴⁹
- The **Loon LLC** was an X project that worked on possibilities to provide internet access to remote areas by using high altitude balloons. It became an independent company in July 2018. This technology has been used to provide internet access in Puerto Rico after the system had been taken down by an hurricane in 2017.
- **The Makani Technologies LLC** develops airborne (i.e. towerless) wind turbines. Google had funded Makani since 2007, before the company was acquired and integrated into X in 2013.⁴⁰⁵⁰ Makani became an independent company in February 2019.

4048 R. Cellan-Jones. Google's plan to make talk less toxic (23 February 2017), available at <https://www.bbc.com/news/technology-39063863>.

4049 B. Chappell: FAA Certifies Google's Wing Drone Delivery Company To Operate As An Airline (April 23, 2019), available at <https://www.npr.org/2019/04/23/716360818/faa-certifies-googles-wing-drone-delivery-company-to-operate-as-an-airline>.

4050 <https://makanipower.com>

- The **Malta Inc.** has been an X project that became an independent company in December 2018.⁴⁰⁵¹ Malta develops technologies to store electricity as heat in high temperature molten salt.

Shareholding Structure

Alphabet's stocks are separated into three different classes that come along with different voting rights. Class C stock is traded under GOOG and does not have any voting power. Class A stock is traded under GOOGL and each share entitles the owner to one vote on director nominees and proposals to be voted on. Class B stock is not traded on the public market and is owned by company insiders. Each share of Class B stock is entitled to ten votes on director nominees and proposals to be voted on. As of April 22, 2019, there were 299,436,023 shares of Alphabet's Class A common stock outstanding, 46,544,284 shares of Alphabet's Class B common stock outstanding, and 348,263,508 shares of Alphabet's Class C capital stock outstanding.⁴⁰⁵² 95% of Class B stock is held by Executive Directors and Officers of the Alphabet Inc., which grants them 58,2% of total voting power. Larry Page and Sergey Brin alone hold enough class B stock to maintain 51% of total voting power together.

Name of Beneficial Owner	Voting Shares Beneficially Owned				% Total Voting Power ⁽¹⁾
	Class A Common Stock		Class B Common Stock		
	Shares	%	Shares	%	
Executive Officers and Directors					
Larry Page	—	—	19,952,558	42.5	25.9
Sergey Brin	—	—	19,290,366	41.1	25.1
Eric E. Schmidt ⁽²⁾	219,960	*	4,283,434	9.1	5.6
Ruth M. Porat	3,000	*	—	—	*
Sundar Pichai ⁽³⁾	16,332	*	—	—	*
David C. Drummond ⁽⁴⁾	129,115	*	12,500	*	*
L. John Doerr ⁽⁵⁾	145,594	*	1,117,447	2.4	1.5
Roger W. Ferguson, Jr.	—	—	—	—	—
Diane B. Greene ⁽⁶⁾	185	*	—	—	*
John L. Hennessy ⁽⁷⁾	4,843	*	—	—	*
Ann Mather	1,680	*	—	—	*
Alan R. Mulally	—	—	—	—	—
K. Ram Shriram ⁽⁸⁾	144,037	*	—	—	*
All executive officers and directors as a group ⁽⁹⁾ (13 persons)	664,746	*	44,656,305	95.1	58.2
Other > 5% Security Holders					
BlackRock, Inc. ⁽¹⁰⁾	18,463,348	6.2	—	—	2.4
Entities affiliated with Fidelity ⁽¹¹⁾	16,866,825	5.7	—	—	2.2
The Vanguard Group ⁽¹²⁾	21,230,525	7.1	—	—	2.8

Source: https://abc.xyz/investor/static/pdf/2018_alphabet_proxy_statement.pdf
(page 30)

The institutional investors BlackRock, Fidelity and Vanguard hold 19% of Alphabets Class A stock, which grants them 7,4% of total voting power.⁴⁰⁵³ Institutional investors allegedly hold around 71% of Alphabets Class C stock.⁴⁰⁵⁴ Common Ownership by institutional

4051 Google: Introducing Malta (December 19 2018), available at <https://blog.x.company/introducing-malta-81bceb559061>.

4052 Alphabet Inc. SEC 10Q Form for the Quarterly Period Ended March 31 2019, available at https://abc.xyz/investor/static/pdf/20190429_alphabet_10Q.pdf?cache=7afe0eb.

4053 Alphabet Inc. SEC Proxy Statement for the Financial Year Ended December 31 2018, available at https://abc.xyz/investor/static/pdf/2018_alphabet_proxy_statement.pdf (page 30)

4054 <https://money.cnn.com/quote/shareholders/shareholders.html?symb=GOOG&subView=institutional>

investors can be found with some of the biggest competitors, such as Facebook⁴⁰⁵⁵ and Amazon⁴⁰⁵⁶.

1.1.1.2. Interlocking Directorates

The board of directors of the Google LLC is currently composed of 10 members: Larry Page, Sergey Brin, John L. Hennessy, L. John Doerr, Roger W. Ferguson, Jr., Ann Mather, Alan R. Mulally, Sundar Pichai, Eric E. Schmidt, K. Ram Shriram.⁴⁰⁵⁷ The directorate of the Alphabet Inc. is composed of the same 10 members plus Diane B. Greene, forming a 11 member directorate.⁴⁰⁵⁸ Alphabet and respectively Google have been subject to investigations by competition authorities, most prominently leading to the departure of Eric E. Smith from the Apple Board of Directors and recently to Alphabet's CLO David Drummond leaving the board of directors of Uber.⁴⁰⁵⁹

- **L. John Doerr III** is member of the board of directors of the Investment Arm of New Schools Venture Fund, Segway Inc., MiaSolé Inc., Zazzle Inc., Himax Display Inc., Ogini Inc., Renmatic Inc., Lockerz Photos, Next Autoworks Company, Flipboard Inc, Essence Group Holdings Corporation, Lumeris Inc., Erly Inc., Coursera Inc., True Software Scandinavia AB, Tradesy Inc, Shyp Inc, Flipagram Inc, BetterWorks Systems Inc, Nescape Communications Corporation, Bloom Energy Corporation, Amyris Inc, MyFitnessPal Inc., Remind101 Inc.⁴⁰⁶⁰ Doerr had left the Amazon board in 2010, allegedly because the FTC has investigated possible anticompetitive ties between Google and Amazon.⁴⁰⁶¹
- **Roger W. Ferguson** is member of the board of directors at the International Flavors & Fragrances Inc. and General Mills, Inc.⁴⁰⁶²
- **Ann Mather** has been a member of Googles board of directors since 2005. She is furthermore director at Netflix, GluMobile, Shutterly, MGM Holdings, Airbnb⁴⁰⁶³ and Arista Networks. Mathers directorate at Netflix seems an interesting fact to investigate, as Alphabets Youtube has joined the streaming segment and is therefore a direct competitor of Netflix.

4055 Facebook: Schedule 14A Information, available at <http://d18rn0p25nwr6d.cloudfront.net/CIK-0001326801/ffd-b441a-71d1-4bd0-9d7b-c1583143b218.pdf>, p. 31.

4056 Amazon: Notice of 2019 Annual Meeting of Shareholders, available at <https://ir.aboutamazon.com/static-files/35fa4e12-78bd-40bc-a700-59eea3dbd23b>, p. 41.

4057 <https://www.bloomberg.com/research/stocks/private/people.asp?privcapId=312932093>

4058 <https://abc.xyz/investor/other/board/>

4059 J. D'Onfro: An Uber board member isn't allowed to come to meetings anymore because he works at Alphabet (August 29 2016), available at <https://www.businessinsider.fr/us/alphabet-david-drummond-barred-uber-board-2016-8>

4060 <https://www.bloomberg.com/research/stocks/private/person.asp?personId=81043&privcapId=21381>; to be verified.

4061 M. Helft, B. Stone: F.T.C. Is Said to Have Looked Into Amazon-Google Ties (April 1, 2010), available at <https://bits.blogs.nytimes.com/2010/04/01/f-t-c-is-said-to-have-looked-into-amazon-google-ties/>.

4062 <https://www.bloomberg.com/research/stocks/private/person.asp?personId=23970035&privcapId=217016812>

4063 S. A. O'Brien: Airbnb adds its first female board member (August 23 2018), available at <https://money.cnn.com/2018/08/23/technology/airbnb-ann-mather-female-board-member/index.html>

- **Alan R. Mulally** is Independent director at Carbon Inc.⁴⁰⁶⁴
- **Eric E. Schmidt** is currently director at Civic Analytics and non-executive director at the economist group limited.⁴⁰⁶⁵ He is furthermore Chairman of Alphabet's GV. Smith has left Apple's board in 2009, after the SEC started investigations of possible infringements of competition regulations.⁴⁰⁶⁶
- **K. Ram Shriram** is director of Plaxo Inc., [24]7.ai, Inc., Business Signatures Corporation, MEVIO, Inc., OnHealth Network Company and Zazzle Inc.⁴⁰⁶⁷
- **Larry Page, Sergey Brin, Sundar Pichai, John L. Hennessy and Diane B. Greene** are not known to hold any executive positions in other companies.

1.1.2. Corporate Growth Strategy: Business Models and Ecosystems

Google's Growth Strategy has been described as *semi-organic*, which means that "revenue results from products or services that emerge when acquired technology-related assets attach to a company's existing capabilities in a complementary manner."⁴⁰⁶⁸ Complementary businesses show a sufficient degree of similarity to generate efficiencies of scale and scope while also creating value from "differences that are mutually supportive enhancement-based synergies".⁴⁰⁶⁹

Google Inc. respectively Alphabet Inc. have acquired roughly 170 companies since 2010. In each of its most acquisitive years 2011 and 2014, Google has acquired 34 companies.⁴⁰⁷⁰ The biggest acquisitions in order of volume have been Motorola Mobility in 2010 (\$12.5 billion), Nest Labs in 2014 (\$3.2 billion), DoubleClick in 2008 (\$3.1 billion), Youtube in 2006 (\$1.65 billion) and Waze (\$996 million).⁴⁰⁷¹ Some of Google's most valuable products and services such as Android, Docs, Analytics and Maps are rooted in acquisitions.⁴⁰⁷²

The company's mentality towards M&A was described as a *failure is a feature* mentality, with some acquisitions in highly experimental areas like the Makani Technologies LLC deal that was described above.⁴⁰⁷³ While investment in experimental business fields

4064 <https://www.bloomberg.com/research/stocks/people/person.asp?personId=370889&privcapId=29096>

4065 <https://www.bloomberg.com/research/stocks/private/person.asp?personId=719894&privcapId=102001393>

4066 J. D'Onfro: An Uber board member isn't allowed to come to meetings anymore because he works at Alphabet (August 29 2016), available at <https://www.businessinsider.fr/us/alphabet-david-drumond-barred-uber-board-2016-8>

4067 <https://www.bloomberg.com/research/stocks/private/person.asp?personId=534647&privcapId=23568809&previousCapId=29096&previousTitle=Alphabet%20Inc>.

4068 G. Geis, *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p.21.

4069 G. Geis, *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p.21.

4070 T. Wu, S. A. Thompson: The Roots of Big Tech Run Disturbingly Deep (June 7, 2019), available at <https://www.nytimes.com/interactive/2019/06/07/opinion/google-facebook-mergers-acquisitions-antitrust.html>.

4071 M. Reynolds: If you can't build it, buy it: Google's biggest acquisitions mapped (November 27, 2017), available at <https://www.wired.co.uk/article/google-acquisitions-data-visualisation-infoporn-waze-youtube-android>.

4072 T. Wu, S. A. Thompson: The Roots of Big Tech Run Disturbingly Deep (June 7, 2019), available at <https://www.nytimes.com/interactive/2019/06/07/opinion/google-facebook-mergers-acquisitions-antitrust.html>.

4073 G. Geis, *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p.105.

traditionally comes along with a higher risk of failure, a number of M&A transactions did not end up being successful for different reasons. In 2006 Google acquired dMarc Broadcasting, a company developing technology to auction radio ad slots, to extent it's advertising network to Audio Ads. This advertising branch was shut down in 2009 after the company faced problems in building the required technology and getting stations to implement it. The microblogging service Jaiku, that was acquired by Google in 2007 was shut down in 2011 because it proved to be unable to compete against the dominant Twitter. Other failed acquisitions include the social search service Aardvark, the photo editing and sharing software Picnic, Slide, TalkBin, dailyDeal and Zagat Survey. Google's most controversial and largest acquisition was Motorola Mobility, with many commentators raising concerns about potential damage to the Android ecosystem by entering the OEM market as a competitor, which may lead to other OEM producers opting for other operating systems.⁴⁰⁷⁴

Another goal Google pursues in its acquisition strategy is the recruitment of talent. According to an article in the Times, at least 221 startup founders were hired after acquisitions between 2006 and 2014.⁴⁰⁷⁵ By 2015, two thirds of them were still with the company.⁴⁰⁷⁶ Google encourages founders to stick with the company by paying stay boni or using golden handcuffs, i.e. compensation that can only be cashed in after a certain time of employment with the company.⁴⁰⁷⁷ Some of the transactions have been labeled *acqui-hire*, because they simply aimed at integrating the targets team into existing Google teams while shutting down the companies original product.⁴⁰⁷⁸ This may be an explanation for the geographic focus of Alphabet acquisitions, with 60% of targets being California-based.⁴⁰⁷⁹

Internal Growth is furthermore pursued by Alphabet's „moonshot“ factory X. Many now independent subsidiaries of Alphabet / Google started as projects of X (see above).

1.1.2.1. Google

The Google LLC can be considered as Alphabet's core business. Googles flagship service is the search engine, but Youtube, Maps, Android, DeepMind, Google Shopping and Googles Advertising Services are equally Google divisions. The latest company to join has been Nest Labs Inc., which was merged into a Google subsidiary called Google Nest in February 2018.⁴⁰⁸⁰ Googles describes it's business model as being “based on the inter-

4074 G. Geis, *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p.105.

4075 V. Luckerson: *How Google Perfected the Silicon Valley Acquisition* (April 15, 2015), available at <http://time.com/3815612/silicon-valley-acquisition/>.

4076 V. Luckerson: *How Google Perfected the Silicon Valley Acquisition* (April 15, 2015), available at <http://time.com/3815612/silicon-valley-acquisition/>.

4077 V. Luckerson: *How Google Perfected the Silicon Valley Acquisition* (April 15, 2015), available at <http://time.com/3815612/silicon-valley-acquisition/>.

4078 G. Geis, *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p. 166.

4079 C. Forrest: *The M&A strategies of 10 tech giants: A founder's guide to selling your startup* (May 29, 2015), available at <https://www.techrepublic.com/article/the-m-a-strategies-of-the-top-10-tech-companies/>.

4080 N. Statt: *Nest is rejoining Google to better compete with Amazon and Apple* (February 7 2018), available at <https://www.>

action between the online products it offers for free and its online advertising services from which it generates the main sources of its revenue".⁴⁰⁸¹ The next pages will shed light on the value chain in this business model by exploring three Google products: Android, Google Shopping and Google Advertising.

1.1.2.1.1. Google Advertising

Google develops and maintains an online advertising platform, in which advertisers pay for the display of advertisement in the Google network as well as on third-party-web-pages. Advertising is Google's (and Alphabets) core business. 85% of Alphabet's total revenue has been created from advertising in 2018.⁴⁰⁸²

1.1.2.1.2. Business Model and Ecosystem

The advertising system is based on keywords that are set by advertisers and on cookies. Advertisements can be placed among the general search results of Google's search engine or on third-party webpages that have a keyword-relevant content (the latter service is called AdSense). When a user clicks on the advertisement and gets redirected to the advertisers webpage or products or services, Google receives a payment by the advertiser. If the advertisement is placed on partner website, the partner receives a part of the revenue. The technology is available for Mobile Devices under the name AdMob and for in-game advertising under AdScape. Information provided by Google Analytics (Google's webtracking services) is used to determine good ad placements.

For displaying ads with AdSense for content, publishers receive 68% of the revenue recognized by Google in connection with the service. For AdSense for search, publishers receive 51% of the revenue recognized by Google. These percentages are consistent, regardless of a publisher's geographic location, and are not averaged between publishers.⁴⁰⁸³ The advertising slots (this includes the slots for the price comparison service Google Shopping) are sold in a bidding process, in which the price is determined based on the keywords, the quality ranking of the advertiser and the competitors. The average cost per click in Google Ads is between \$1 and \$2 per click.⁴⁰⁸⁴

1.1.2.1.1. Structure of the Industry

The global digital advertising market is dominated by Google (including YouTube) with a market share of 32,3% and Facebook (including Instagram) with a market share of 18,7%. Other market players are Alibaba with 9,2%, Baidu with 4,5%, Tencent with 4,9%, Microsoft with 3,5%, Yahoo with 1,1%, Amazon with 1%, Twitter with 0,9% and Snapchat

theverge.com/2018/2/7/16987002/nest-google-alphabet-smart-home-competition-amazon-alexa-apple

4081 Google's Form 10-K Annual Report for the US fiscal year ending 31 December 2015, available at <https://www.sec.gov/Archives/edgar/data/1288776/000165204416000012/goog10-k2015.htm>.

4082 Google's Form 10-K Annual Report for the US fiscal year ending 31 December 2018, available at https://abc.xyz/investor/static/pdf/20180204_alphabet_10K.pdf?cache=11336e3, p 7.

4083 <https://support.google.com/adsense/answer/180195?hl=en>

4084 <https://www.wordstream.com/blog/ws/2015/05/21/how-much-does-adwords-cost>

with 1,1% (see Graphic below). One should, however, keep in mind that the market shares of Alibaba, Baidu and Tencent are a result of their dominance on the Chinese digital advertising market, from which Google and Facebook are widely excluded due to the governments censorship. Google holds an estimated 80,2% of the Search Ad Revenues in the US with no other competitor holding more than 10% of total revenue. It has been announced in March 2019 that the British Competition Authority CMA will investigate the digital advertising market for potential restrictions of competition.⁴⁰⁸⁵

1.1.2.2. Android

Android is an operating system for (touchscreen) mobile devices. The software was originally developed by Android Inc., which was acquired by Google in 2005. The first commercial device that used the operating system was the HTC Dream, which was released in 2008. Versions of android are also used in Wear OS (smartwatches), Android Auto (automobiles), Android TV (TVs).

1.1.2.2.1. Structure of the Industry

Since its acquisition, Android has become the dominant operating system for mobile devices. Android has a market share of around 86% for smartphone being sold in 2018, while the largest competing system iOS has a share of around 14%. Microsoft stopped to work on its Windows 10 Mobile (the successor of the Windows Phone) in 2017 after it was unable to penetrate the market.⁴⁰⁸⁶ Support for the system was announced to be shut down in December 2019 with remaining users being instructed to migrate to iOS or Android.⁴⁰⁸⁷ Blackberry abandoned its own operating system BlackBerry 10 (the successor of BlackBerry OS) in favor of the Android system in 2017. Support for BlackBerry 10 and OS devices will be shut down in the end of 2019. Nokia stopped releasing Smartphones run on its operating system Symbian in 2012.⁴⁰⁸⁸ There are a couple of (mostly open source) operating systems such as Tizen, Plasma Mobile and Librem, but none of them has a relevant market share. There are some regional anomalies to this general dominance of Android and iOS. The operating system Kai OS allegedly captured a market share of 16% in India, overtaking iOS and ranking second after Android.⁴⁰⁸⁹ The global market share of KaiOS, however, remains below 1%.

4085 CMA: Online platforms and digital advertising market study (3 July 2019), available at <https://www.gov.uk/cma-cases/online-platforms-and-digital-advertising-market-study>

4086 C. Reilly: Windows 10 Mobile gets its final death sentence (October 8, 2017), available at <https://www.cnet.com/news/windows-10-mobile-features-hardware-death-sentence-microsoft/>.

4087 T. Haselton: Microsoft recommends switching to iPhone or Android as it prepares to kill off Windows phones (January 18, 2019), available at <https://www.cnbc.com/2019/01/18/microsoft-ending-windows-10-mobile-says-switch-to-iphone-or-android.html>.

4088 C. Marshall: From birth to death: why Nokia's Symbian was the future of mobile tech (January 27, 2013), available at <https://www.techradar.com/news/software/operating-systems/from-birth-to-death-why-nokia-s-symbian-was-the-future-of-mobile-tech-1127653>.

4089 S. Hariharan: OS that makes 'dumb phones' smart takes on Android, Apple (April 29, 2019), available at <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/os-that-makes-dumb-phones-smart-takes-on-android-ap>

Google has invested \$22 million in KaiOS in 2018 and subsequently cooperated with KaiOS to make Google services like Maps, Youtube and Google Search available for the system.⁴⁰⁹⁰ Nokia has launched a KaiOS-based smartphone in 2018.⁴⁰⁹¹ Another regional specificity can be found in China, where the Android market share of around 75% is below the worldwide average, which is why the European Commission held China to be the only country where Android is not the dominant mobile operating system.⁴⁰⁹²

One should, however, keep in mind that iOS is exclusively used by vertically integrated developers. This is why the European Commission assumed that iOS is not part of the same market because it is not available for license by third-party manufacturers.⁴⁰⁹³ The market share of Android in the market for licensable smart mobile operating systems was held to be over 95% by the Commission but can be held to be close to a 100% considering the market shares elaborated above. The Commission has fined Google €4.34 billion for imposing “illegal restrictions on Android device manufacturers and mobile network operators to cement its dominant position in general internet search” in 2018.⁴⁰⁹⁴

1.1.2.2.2. Business Model

Even though Google has continued to develop Android since the acquisition, the software was kept open access.⁴⁰⁹⁵ Third parties can download, use and modify the source code free of charge.⁴⁰⁹⁶ This does however not include the *Google Mobile Services* (GMS) such as Gmail, Google Maps or Google Playstore. If device manufacturers wish to install these applications on their devices, they have to enter into a licensing agreement with Google.⁴⁰⁹⁷ This license was originally not paid monetarily but compensated with the agreement to certain restrictions that were beneficial to Google’s dominance in the search market (by tying the GMS to Google search) and in the mobile operating system market (by preventing device manufacturers from producing phones with competing Android forks).⁴⁰⁹⁸ These restrictions have however been declared unlawful by the European Commission in 2018 and resulted in Google being fined €4,34 billion.⁴⁰⁹⁹ Since then Google has announced to change Androids business model to comply with the EC’s decision. While the restrictions will be dropped by Google, it will start charging phone

[ple/articleshow/69091338.cms](http://europa.eu/rapid/press-release_IP-18-4581_en.htm).

4090 J. Russel, I. Lunden: Google invests 422M in feature phone operating system KaiOS (date unknown), available at <https://techcrunch.com/2018/06/27/google-kaios/>.

4091 O. Cragg: The ‘Matrix phone’ is back: Nokia 8110 retro reboot coming (Update: Pre-order in UK) (August 9, 2018), available at <https://www.androidauthority.com/nokia-8110-4g-price-availability-mwc-2018-hmd-global-840011/>.

4092 http://europa.eu/rapid/press-release_IP-18-4581_en.htm; full decision not published as of July 16 2019.

4093 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4094 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4095 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4096 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4097 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4098 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

4099 http://europa.eu/rapid/press-release_IP-18-4581_en.htm.

makers a license fee before being able to install the GMS.⁴¹⁰⁰ These fees will, however, not be the most important source of profits from the Android business. More important is the money that flows from the cut Google takes from app sales on PlayStore and mobile advertising in its own applications such as YouTube, Google Maps, Drive and Gmail among others.

Net Digital Ad Revenue Share Worldwide, by Company, 2016-2019 % of total and billions				
	2016	2017	2018	2019
Google	32.8%	33.0%	32.4%	32.3%
Facebook	14.1%	16.2%	17.7%	18.7%
Alibaba*	6.6%	7.8%	9.0%	9.2%
Baidu	4.3%	4.2%	4.3%	4.5%
Tencent	2.2%	3.0%	4.0%	4.9%
Microsoft (Microsoft and LinkedIn)**	2.3%	2.7%	3.1%	3.5%
Yahoo	1.6%	1.4%	1.2%	1.1%
Twitter	1.2%	1.0%	0.9%	0.9%
Amazon	0.7%	0.8%	0.9%	1.0%
Verizon (AOL and Millennial Media)	0.7%	0.7%	0.6%	0.5%
Pandora	0.6%	0.5%	0.5%	0.5%
IAC	0.5%	0.4%	0.3%	0.3%
Sina	0.4%	0.4%	0.4%	0.5%
Snapchat	0.2%	0.4%	0.7%	1.1%
Sohu.com	0.5%	0.4%	0.4%	0.3%
Yelp	0.3%	0.3%	0.3%	0.3%
Other	31.1%	26.7%	23.2%	20.4%
Total digital ad spending (billions)	\$190.57	\$223.74	\$259.84	\$297.41
<small>Note: includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets and other internet-connected devices; and includes all the various formats of advertising on those platforms; net ad revenues after company pays traffic acquisition costs (TAC) to partner sites; *includes ad revenue from Alibaba's core commerce operations and Youku Tudou; **includes ad revenue from LinkedIn Source: company reports; eMarketer, March 2017</small>				
224290 www.eMarketer.com				

Net US Digital Ad Revenue Share, by Company, 2016-2020 % of total digital ad spending and billions					
	2016	2017	2018	2019	2020
Google	40.4%	39.4%	37.1%	36.2%	35.1%
—YouTube	4.0%	4.4%	4.1%	4.0%	3.9%
Facebook	16.8%	19.7%	20.6%	20.8%	20.8%
—Instagram	2.2%	3.6%	5.5%	6.8%	7.9%
Microsoft (Microsoft and LinkedIn)	4.6%	4.2%	4.1%	3.7%	3.3%
—LinkedIn	1.0%	0.9%	1.0%	0.9%	0.9%
Amazon	1.6%	2.1%	4.1%	5.5%	7.0%
Oath	1.7%	4.1%	3.3%	2.8%	2.5%
Twitter	1.9%	1.3%	1.0%	0.9%	0.8%
Yelp	0.8%	0.9%	0.8%	0.8%	0.8%
Snapchat	0.4%	0.6%	0.6%	0.7%	0.8%
IAC	0.7%	0.5%	0.5%	0.4%	0.4%
Pinterest	0.4%	0.4%	0.5%	0.6%	0.6%
Hulu	0.4%	0.4%	0.4%	0.3%	0.3%
Roku	0.1%	0.1%	0.2%	0.3%	0.4%
Yahoo	3.1%	-	-	-	-
Total digital ad spending (billions)	\$72.85	\$88.40	\$111.14	\$132.32	\$156.74

Net Digital Ad Revenue Share in China, by Company, 2019 % of total digital ad spending	
Alibaba*	32.6%
Baidu	15.4%
Tencent	12.7%
Sina	3.0%
—Weibo	2.8%
Sohu	0.8%

There is no clear and recent data on the profits generated by Android. It was, however, accidentally revealed in a 2016 lawsuit between Oracle and Alphabet, that Alphabet has made \$31 billion in revenue and \$22 billion in profit from Android since its creation.⁴¹⁰¹ This is an amount equivalent to the revenue of Apple's iPhone sales in the Q4 of 2015.⁴¹⁰²

1.1.2.2.3. Ecosystem

Google is a core player in the Android ecosystem, not only as the main developer of the operating system but also as an app developer and device manufacturer.

The device manufacturers form another player in the ecosystem. They use the technology that is generated by the Android ecosystem, including the operating system developed by Google as well as technology produced by other actors in the ecosystem such as app developers. They provide handsets to the ecosystem, i.e. hardware and android compatible software. Google itself had joined the market of device manufacturers by ac-

4100 S: Schechner: Google Will Charge Phone Makers to Pre-Install Apps in Europe (October 16 2018), available at <https://www.wsj.com/articles/google-will-charge-phone-makers-to-pre-install-apps-in-europe-1539707606>.

4101 J. Rosenblatt, J. Clark: Google's Android Generates \$31 Billion Revenue, Oracle Says (January 21 2016), available at <https://www.bloomberg.com/news/articles/2016-01-21/google-s-android-generates-31-billion-revenue-oracle-says-ijor8hvt>.

4102 M. Singleton: Oracle just revealed how much money Google makes from Android (January 21, 2016), available at <https://www.theverge.com/2016/1/21/10810834/android-generated-31-billion-revenue-google-oracle>.

quiring Motorola Mobility in 2012, but ended up selling it off to Lenovo in 2014.⁴¹⁰³ With an estimated revenue \$60 billion in Q4 2017, device manufacturers capture a significantly bigger share of the overall value off the android ecosystem than Google does.⁴¹⁰⁴

Mobile App developers provide user software to the market. In exchange, they either receive direct financial compensation by users or compensation through placing advertising. Mobile App developers also capture growing shares of the revenue generated by the Android ecosystem, with a reported revenue of \$20 billion in 2017.⁴¹⁰⁵

The user base consumes the hardware and software that is provided by the other participants in the ecosystem. While some of this is compensated by money, users also provide their data to the market. It has furthermore been discussed whether users pay services provided to them with their attention to advertising.

1.1.2.3. Google Shopping

Google Shopping is a specialized search service that allows users to compare product offers from different merchant websites.⁴¹⁰⁶ The services was first launched in the US in 2002 as Froogle, later renamed Google Product Search in 2007 before it finally became Google Shopping in 2012.

1.1.2.3.1. Structure of the Industry

The industries relevant to Google Shopping are the market for comparison shopping services and (because of involvement in the business model) the market for general search services.⁴¹⁰⁷ Google holds a dominant position in the general search industry, with a market share of 80,47% for desktop search and 94,87% for mobile search in 2017. The development of Google shopping is held to be a reaction to Amazon's growing relevance as a product search engine. It is difficult to find reliable data on the global market shares of other price comparison services, as most of them are operating in national markets.⁴¹⁰⁸

4103 G. Geis: *Semi-Organic Growth – Tactics and Strategies behind Google's success*, Weinheim, Wiley, 2015, p. 114.

4104 J. Koetsier: *Apple Captures 51% of Global Smartphone Revenues: 3X Samsung, And 7X Huawei* (February 15 2018), available at <https://www.forbes.com/sites/johnkoetsier/2018/02/15/apple-captures-51-of-global-smartphone-revenues-3x-samsung-and-7x-huawei/#7af8fee47dda>.

4105 S. Perez: *App revenue climbed 35 percent to \$60 billion in 2017* (date unknown), available at <https://techcrunch.com/2018/01/05/app-revenue-climbed-35-percent-to-60-billion-in-2017>.

4106 http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf, p. 11.

4107 http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf, p. 28.

4108 http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf, p. 55.

Search Engine	Desktop	Mobile
Google - Global	80.47%	94.87%
Bing	7.15%	0.89%
Baidu	5.59%	0.37%
Yahoo - Global	5.55%	2.94%
Ask - Global	0.20%	0.05%
AOL - Global	0.05%	0.01%
Excite - Global	0.02%	0.00%

Source: EC Commission Decision AT.39740 – Google Search (Shopping) ⁴¹⁰⁹

1.1.2.3.2. Business model

Google Shopping has originally been a standalone specialized search services website, which respond to user queries by returning offers from merchant websites, enabling users to compare them.⁴¹¹⁰ When rebranding Froogle in 2007 Google also launched a „One Box” for Google Product Search. Universals or OneBoxes are results from one of Google’s specialist search results that are shown on the general search results pages, mostly above or among the first generic search results. The Product Universal (now: Shopping Unit) shows Google Product Search results, including images, prices and other information on the relevant items. While merchants first did not have to pay to be included in the Product Search, Google changed its business model to a “paid inclusion” model in 2012. Merchants now have to pay when their product is clicked on Google Shopping. The business model was changed in reaction to the Commission’s decision in Google Shopping: Other product comparison platforms are now allowed to participate in an auction process for the advertising spots.⁴¹¹¹ However, a 2018 study has found that over 95% of ads are still placed by Google.⁴¹¹²

1.1.2.3.3. Ecosystem

The ecosystem of Google Shopping is alike the Google Advertising System. Google provides a platform for the matching between merchants and buyers. Google Shopping has a special position in comparison to other price comparison platforms which are often either specialized on certain products (such as flights, flats, cars) or only operate on the national level.

⁴¹⁰⁹ http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf, p. 35.

⁴¹¹⁰ http://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf, p. 11.

⁴¹¹¹ Searchmetrics: Google Shopping 2018 – Analysis and Market Overview, p.8, available at <https://www.realwire.com/writeitfiles/Searchmetrics-Google-Shopping-Study-2018-EN.pdf>.

⁴¹¹² Searchmetrics: Google Shopping 2018 – Analysis and Market Overview, p.8, available at <https://www.realwire.com/writeitfiles/Searchmetrics-Google-Shopping-Study-2018-EN.pdf>.

1.1.3. Summary of the Case study

1.1.3.1. Contractual Governance

Exclusivity agreements by Google have been the subject to proceedings before the European Commission in recent years. Google has been bundling 11 different apps with the license to use the Google Play Store. It furthermore used to block phone makers from selling mobile devices that run forked Android versions and paid handset manufacturers to exclusively bundle the Google search app on mobile devices.⁴¹¹³ After the European Commission slapped Alphabet with a record fine for anticompetitive conduct, the company has decided to abandon these practices. It instead start to charge royalties for Google Apps like Maps, GMail and Docs.⁴¹¹⁴

Google furthermore used to make it impossible for competitors to place advertisements on third-party websites by including exclusivity clauses to AdSense contracts. This has equivalently been subject to an investigation by the European Commission and eventually led to a fine of 1.7 billion €.

A major technique to enlarge the value capture in certain ecosystems or penetrate new markets is through acquisitions. This does not only include the acquisition of the hard assets of the acquired companies but foremost the acquisition of talent.

1.1.3.2. Soft or informal governance

Soft and informal governance regimes can be found in all branches of the Alphabet Inc. It is likely that Alphabet exercises influence on third party companies through the support section of the private equity and venture capital branches GV Management Company LLC and CapitalG Management Company LLC. That is to be assumed above all because many portfolio companies are active in similar economic sectors. Similar influence might also be exercised by external institutional investors such as BlackRock and Vanguard, that hold shares in Alphabet as well as in competing companies. In addition, it seems at least not unlikely that the parallel activity of Google directors in other companies in the digital sector will lead to mutual influence.

1.1.3.3. Conclusion

A conclusion that can be drawn from the examples outlined above is that Google's attempts to enlarge its value capture in different ecosystems are subject to increasing scrutiny by competition authorities. Especially the exclusivity agreements for the use of licenses have been subject to several procedures before the European Commission.

4113 R. Browne, J. D'Onfro: EU fines Google \$5 billion over Android antitrust abuse (July 18 2018), available at <https://www.cnbc.com/2018/07/10/eu-hits-alphabet-google-with-android-antitrust-fine.html>.

4114 J. D'Onfro: Google will stop bundling its apps on Android phones in response to EU fine (October 16 2018), available at <https://www.cnbc.com/2018/10/16/google-will-stop-bundling-its-apps-on-android-phones-in-response-to-eu-fine.html>.

While the contractual governance in Google's ecosystems has therefore changed during the last decade, the informal or soft governance as well as acquisitions still allow Google to increase its market share in different business fields. However, several strategic changes in Google's business imply the company is trying to modify its business model to explore new sources of income (such as the licensing of Apps or the creation of a premium segment for Youtube) apart from the classic advertising business.

1.2. Amazon^{4115*}

1.2.1. Nature of the competitive game

The global retail e-commerce market has been growing at an average of 20% since 2014 and projections predict this trend will last at least until 2021.⁴¹¹⁶ In 2017, the retail e-commerce sales worldwide made up 2,3 trillion USD, with projections for 2021 amounting to 4,88 trillion USD. Online shopping combines for 15 % of internet usage, yet the market shows significant regional differences. In China, eg., 19 percent of the total sales volume occurred through the internet, while Japan had a share of only 6.7 percent. Competition among e-commerce businesses has been fierce, since under the influence of sales meta-search engines, the price has become the main differentiator.⁴¹¹⁷ Also, consumer expectation has risen significantly under the influence of market leaders and their benchmark setting the standard for fulfilment, reviews and customer service. Businesses seek to engage in a more-than-transactional relation with clients. It is here that ecommerce platforms develop ecosystems in order to have a deeper integration into users' behaviour and usage patterns (user group, time,...). E-commerce competition centers around consumer attention in an environment of growing distractions ('attention economy')⁴¹¹⁸. Today, e-commerce ecosystems include technology, hardware storage, internet and data services, industrial real estate investment trusts, logistics, and payment services. Amazon, Inc. has gone furthest in multiplying the sales and service markets in which it acts as middleman⁴¹¹⁹, ranging from retail to digital media content, and recently cloud services, health care, and home assistance.

1.1. Amazon's story of growth

Amazon.com, Inc. is a technology company headquartered in Seattle, Washington which operates in the fields of e-commerce, cloud computing, and artificial intelligence. It forms the world's largest e-commerce marketplace and cloud computing platform and

4115 * Klaas Hendrik Heller.

4116 <https://www.shopify.com/enterprise/global-ecommerce-statistics>.

4117 <https://econsultancy.com/how-ecommerce-sites-can-rise-above-price-driven-competition/>.

4118 Cf. T. Wu, Blind Spot: The Attention Economy and the Law, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2941094.

4119 <https://www.brucebnews.com/2018/08/the-amazon-ecosystem-the-company-that-wants-to-sell-everything-to-every-one/>.

is the world's largest Internet company by revenue as well as the second largest employer in the United States. Funded by current CEO Jeff Bezos in 1994, Amazon started as an online bookstore, but quickly broadened its offer and expanded successively into audio and video downloads and streams, software, video games, electronics, apparel, furniture, food, toys and jewelry and is today a full-service retailer.

On Amazon.com, third-party resellers' sales have gone up from 3 % in 1999 to 58 % in 2018.⁴¹²⁰ In this third-party reseller segment, Amazon competes with eg eBay and has tried to outperform competitors by offering superior selling tools which manage inventory, process payments and shipments.

In 2002, Amazon launched Amazon Web Services (AWS), an internet data analytic which provided statistics for marketers and developers. In 2006, AWS expanded its portfolio into cloud computing through the acquisition of services which rent computer processing power and storage space respectively. Likewise in 2006, Amazon started Fulfillment by Amazon which offers individuals and small companies to sell their products through the Amazon website and have shipment administered through Amazon.

In an acquisition that was widely interpreted as an attempt to alter the concept of a retail store, Amazon acquired the US leading organic retail chain, Whole Foods Market, in 2017.

Amazon's products and services today include a vast spectrum integrating into several spheres of economic and personal life, including AmazonFresh, Amazon Prime, Amazon Web Services, Alexa, Appstore, Amazon Drive, Echo, Kindle, Fire tablets, Fire TV, Video, Kindle Store, Music, Music Unlimited, Amazon Digital Game Store, Amazon Studios, and AmazonWireless.

1.2. Corporate subsidiaries

At present, Amazon owns over 40 subsidiaries, including, inter alia, the following:

- **A9.com** is focusing on developing innovative technology.
- **Amazon Maritime, Inc.** is entitled to operate as a non-vessel-owning common carrier and enables the company to proceed shipments from China to the US.
- **Amazon Web Services** (AWS) provides tailored cloud-computing platforms to individuals, companies and governments. These provide a technical infrastructure composed of modularized building blocks and tools, such as Amazon Elastic Compute Cloud, enabling users to have access to a virtual cluster of computers through the Internet. Most of the more than 90 of such services included in AWS's portfolio until 2017 are not directed at end users but programmers and developers through APIs. The AWS services is administered through server farms throughout the world. Its pricing policy is based on the degree of usage, the features chosen and additional aspects of availability, redundancy, security and service. Customers include, inter alia, NASA, the Obama presidential campaign of 2012, Netflix and

⁴¹²⁰ Amazon, Inc. Annual Report 2018, available at <https://ir.aboutamazon.com/static-files/0f9e36b1-7e1e-4b52-be17-145dc9d8b5ec>.

more than 80 % of Germany's listed DAX companies. In 2019, a bigger collaboration with Volkswagen was announced, aiming at a full cloud-based integration of the VW supply chain.⁴¹²¹ While AWS owns 34 % of all clouds (IaaS and PaaS), its largest competitors are Microsoft (11 %), Google (8%) and IBM (6%)⁴¹²².

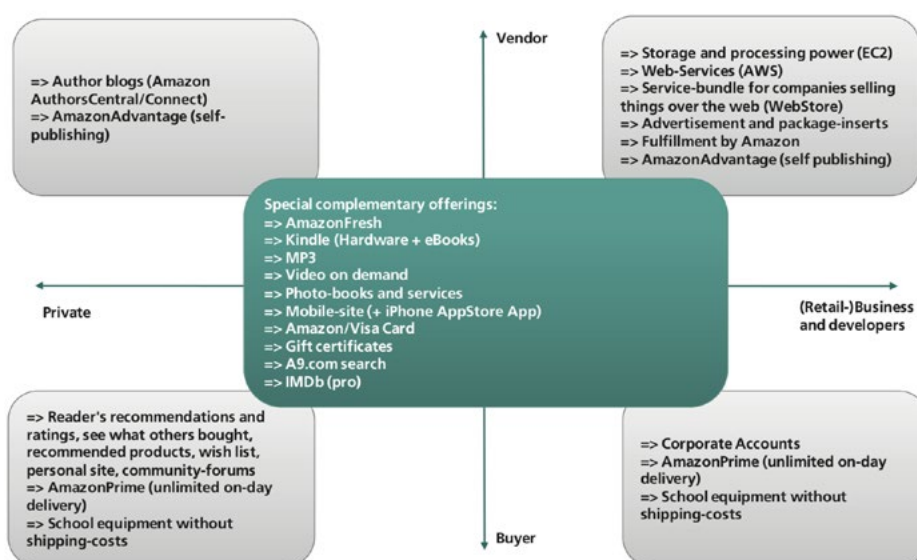
- **Audible.com** produces and distributes spoken audio content, such as entertainment, information and educational programming. Its production branch, Audible Studios, has turned Audible into the world's largest producer of audiobooks on the Internet. Amazon acquired Audible in 2008.
- **Beijing Century Joyo Courier Services** holds a freight forwarding license by the US Maritime Commission and is part of Amazon's attempts to explore innovative logistics concepts including trucking and air freight in order to compete with leading cargo operators such as UPS and FedEx.
- **ComiXology**, acquired in 2014, is a cloud-based digital comics platform which gives access to a selection of more than 40,000 comics and graphic novels on portable devices and via web browser.
- **CreateSpace**, acquired in 2009, provides self-publishing services for independent publishers, film studios, and music labels.
- **Goodreads**, acquired in 2013, functions as a "social cataloging" service that gives users access to user-generated databases of books, annotations, and reviews.
- **Lab126** develops integrated computer hardware such as e-readers and tablets (Kindle), digital media player (Amazon Fire TV), phones (Fire Phone) and voice command devices (Echo).
- **"Project Kuiper"** is a satellite internet constellation working together with satellite ground station facilities (the "AWS Ground Station Unit") in order to provide large broadband internet.
- **Ring** is a smart home company which focusses on WiFi powered smart doorbells alongside other smart devices, eg in home security.
- **Souq.com**, acquired by Amazon in 2017, is the largest e-commerce platform in the Middle East with a base in Dubai.
- **Twitch** is a live streaming platform for video with emphasis on video gaming content, described as the "ESPN of esports".
- **Whole Foods Market** is the largest US organic supermarket chain, acquired by Amazon in 2017.
- **Junglee** is an online shopping service that provides a search within online and offline offers from India, allowing to compare millions of products across various shopping facilities through one interface.

4121 <https://www.volkswagenag.com/en/news/2019/03/volkswagen-and-amazon-web-services-to-develop-industrial-cloud.html>.

4122 <https://awsinsider.net/articles/2017/08/01/aws-market-share-3x-azure.aspx>.

1.2.2. Business Models

Amazon's corporate vision statement posits the aim "to be Earth's most customer-centric company, where customers can find and discover anything they might want to buy online."⁴¹²³ Towards this, Amazon formulates its mission, namely to "strive to offer our customers the lowest possible prices, the best available selection, and the utmost convenience." Pricing, selection and convenience⁴¹²⁴ are achieved through size and a fast-moving business strategy based on technological innovation. Competitors' market prices are used as a basis to set the price of AmazonBasics products. In other fields, Amazon recurs to price discrimination by pricing the same item differently to different consumer groups, ie in the US and UK shop. Hence, adjustments to national market specifics, the respective perceived value of products ("value-based pricing") and consumer preferences become easy to implement.



Source: Weiner/Renner/Kett (2010)⁴¹²⁵

Amazon quickly outgrew its role as a mere online bookstore by the use of technological innovation and a broad range of services targeting different client groups in the aim of ultimately offering "infrastructure as a service". Today, Amazon follows a hybrid business model and disposes of a series of *streams of revenues*, making it less dependent on a specific service and its economic success, trade cycles and regulatory context. For private customers, reader's recommendations and ratings allowed personalized search early on, more recent services such as "One-Click-Buy" and advanced delivery options have made the purchase more convenient. For vendors, Amazon now offers fully-fledged infrastructure online and offline, comprising storage and delivery facilities

4123 <https://www.amazon.jobs/en/principles>.

4124 See specifically on the effects of convenience <https://www.marketplacepulse.com/articles/the-tyranny-of-amazon-convenience>.

4125 N. Weiner/Th. Renner/H. Kett, Geschäftsmodelle im "Internet der Dienste", Fraunhofer IAO, 2010, https://www.digital.iao.fraunhofer.de/content/dam/iao/ikt/de/documents/2010_geschaeftsmodelle_im_idd_aktueller_stand.pdf.

as well as webservices that provide for advertising, processing of sales and logistics. Altogether, Amazon offers a broad and modularized service bundle that allows an easy and comprehensive online store setup without almost any hard- or software requirements for the vendor.

1.2.3. Ecosystem

Through the described product mix, Amazon has early on adopted an integrative ecosystem strategy and today operates a fully-fledged ecosystem that is often seen as prime example of the very concept of “ecosystem”.

A key integrative tool that cross-cuts classical lines of division between product markets is the loyalty program **Amazon Prime**. Initially established in 2005 at an initial cost of \$79 per year, guaranteeing free two-day shipping as essential perk, it has over the time expanded to cover a broad spectrum of benefits that 100 million people worldwide subscribe to.⁴¹²⁶ Amazon has used Prime to test new services, such as same-day delivery, Prime Days (responding to Black Friday), Prime Pantry (order of non-perishable household items at a flat fee), free movies, photo storage, and Prime Music, a music-streaming service. The usage habits of Prime subscribers differ significantly: 46 % of subscribers purchase something online at least once a week, compared to only 13 % of other customers who purchase on a weekly basis.⁴¹²⁷

Another pillar of the ecosystem is its integration through devices like **Echo** and **Amazon Kindle**. Unlike Apple that sells hardware with high margins, Amazon makes rather little profit from the mere sale of its hardware. Kindle combines Amazon’s carryover from the ebook market with hardware investment. While Kindle falls short on many accounts to be the technically best tablet, it established itself as a low-priced tablet that offers an easy integration into the Amazon ecosystem and content provision. Amazon Echo expands the ecosystem to smart homes. For instance, Amazon has issued a HomeKit for developers and an Alexa Connect Kit for consumers that allows to place a broad range of devices under the control of Alexa. Like other personal assistants, Echo’s profitability hinges upon data capture and consumer loyalty, both key features to other services in the Amazon ecosystem.⁴¹²⁸

1.2.3.1. Amazon Marketplace

Amazon Marketplace currently lists 6M sellers, out of which 2.5M are active with products for sale. 200K sellers make an annual revenue of more than \$100K, 24K sellers make more than \$1M.⁴¹²⁹ More than 3K new sellers join Amazon every day. On Mar-

4126 <https://www.pymnts.com/amazon-loyalty/2018/prime-ecosystem-free-shipping-delivery-subscription-benefits-whole-foods/>.

4127 https://fv.feedvisor.com/CN_2019_Amazon-Consumer-Behavior-Report.html.

4128 Cf <https://www.sourcetoday.com/supply-chain/amazon-moves-supply-chain>; for an insightful illustration of the Echo supply chain including its hidden costs cf <https://anatomyof.ai>.

4129 <https://www.marketplacepulse.com/amazon/number-of-sellers>.

ketplace, Amazon provides infrastructure, warehouses, a fulfilment network, financial services and access to millions of customers – it is described as a “quasi-state”, requiring fees, not taxes.⁴¹³⁰ Sellers can choose between a fulfilment by the merchant (FBM) or fulfilment by Amazon (FBA). FBA goods are directly stored in Amazon’s fulfilment centres and both shipment and customer services are taken care of by Amazon.

For professional sellers (ie more than 40 intended sales per month), Amazon charges a monthly subscription fee of \$39,99 as well as a referral fee and a closing fee that vary depending on the product type and generally amount to 15-20% of the total item price.⁴¹³¹

Many sellers centre – as intended by Amazon – their entire business around Amazon Marketplace. Thereby, they become heavily dependent on the continuation of the co-operation. At the same time, Amazon deploys a strict contractual regime towards third-party sellers and enforces it through economic pressure and technological implementation (see *infra*). In addition, competing sellers use Amazon’s rules to the extent that they protect sellers to get rivals suspended through certain practices. One of such means is to buy fake five-star reviews for competitors in order to have them violate the Amazon review policy; others include filing false intellectual property reports, reclassifying rivals’ listings in unfitting categories and trademark tampering.⁴¹³² Once a suspension is issued by Amazon, there is few and opaque means of appeal, which has given rise to a specialized industry of consultants that challenge Amazon’s suspension decisions. They claim knowledge of or familiarity with internal Amazon data and seller accounts which has become traded on a black market. For many sellers, a case being brought by Amazon is reportedly perceived as more threatening than an actual court proceeding.⁴¹³³

1.2.3.2. Governance between Amazon and retailers

The relation between Amazon and third-party sellers on Amazon Marketplace is governed by the *Amazon Services Business Solutions Agreement*⁴¹³⁴ (hereinafter: Business Agreement) and, more specifically, the *Selling on Amazon Service Terms*⁴¹³⁵ (hereinafter: Selling Terms). The practices on Amazon Marketplace have been under review by the French⁴¹³⁶, Austrian⁴¹³⁷, German⁴¹³⁸ and European⁴¹³⁹ competition authorities. On July 17, 2019, the German proceedings were settled following Amazon’s concession to signifi-

4130 <https://www.theverge.com/2018/12/19/18140799/amazon-marketplace-scams-seller-court-appeal-reinstatement>.

4131 <https://services.amazon.com/selling/pricing.htm>; for illustrations cf <https://www.cpcstrategy.com/blog/2019/04/sell-on-amazon/#4>.

4132 <https://www.theverge.com/2018/12/19/18140799/amazon-marketplace-scams-seller-court-appeal-reinstatement>.

4133 <https://www.theverge.com/2018/12/19/18140799/amazon-marketplace-scams-seller-court-appeal-reinstatement>.

4134 https://sellercentral.amazon.com/gp/help/external/1791?language=en_US&ref=efph_1791_cont_G521.

4135 https://sellercentral.amazon.com/gp/help/external/1791?language=en_US&ref=efph_1791_cont_G521.

4136 <http://www.leparisien.fr/economie/bruno-le-maire-assigne-amazon-en-justice-18-12-2017-7458921.php>.

4137 <https://www.politico.eu/pro/austrian-competition-watchdog-probes-amazon/>.

4138 https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2018/29_11_2018_Verfahrenseinleitung_Amazon.html.

4139 <http://competitionlawblog.kluwercompetitionlaw.com/2018/11/30/the-eus-competition-investigation-into-amazon-marketplace/>.

cantly alter its terms towards Marketplace sellers.⁴¹⁴⁰ On the same day, the EU COM announced the opening of formal antitrust proceedings, inter alia looking at the standard agreements between Amazon and marketplace sellers with respect to Amazon's right to analyse and use third party seller data.⁴¹⁴¹ Besides the fairness of contractual terms, a major concern is the dual role of Amazon as provider of infrastructure and merchant itself which rises doubts about Amazon's use of data collected from third-party sellers. Reports state that Amazon allegedly offers own products at a cheaper price than third-party sellers so that it appears on top of the list. Based on market data gathered through third-party sellers, Amazon's commercial risk could in this constellation be close to zero.

Before the amendments announced on July 17, 2019, particular concerns regarding specific clauses related to a lack of transparency and unexpected and unclear termination, a lack of possibilities to enforce contractual obligations on Amazon and reach clarity on the matters of a dispute, a perceived disadvantage of sellers in customer reviews, as well as the obligation to grant Amazon the right to use product and other business information. Three of these aspects and the current modifications shall be presented in more detail.

Right to suspension

Both agreements gave Amazon broad and unlimited discretion to end the business relationship without notice and justification and at any time.⁴¹⁴² A suspension decision against a seller could be "appealed" through an online procedure provided for by Amazon.⁴¹⁴³ This required to detail a 'plan of action' that contains steps to which the seller commits to 'correct the problems (he or she) identified'. In practice, reasons of suspension seemed oftentimes unclear and non-transparent to the seller, especially in case of targeted involvement of a competitor. In such cases, sellers may be compelled to "admit" wrongdoings which they are not responsible for just in order to be able to formulate a plan to overcome them.

The low degree of transparency and foreseeability in the suspension decision and subsequent appeals proceedings indicates a strong level of social control through soft governance that puts sellers under a constant threat. Through the immense importance of listings and reviews, this threat also materializes technologically. Several cases are being reported of a sudden change in listing positions without any apparent reason.⁴¹⁴⁴ Given that less than one quarter of searches on Amazon concern a specific brand (eg "Nike

4140 https://www.bundeskartellamt.de/SharedDocs/Entscheidung/EN/Fallberichte/Missbrauchsaufsicht/2019/B2-88-18.pdf?__blob=publicationFile&v=4.

4141 http://ec.europa.eu/competition/antitrust/cases/dec_docs/40462/40462_6210_9.pdf.

4142 Art. 1 Business Agreement: „We may at any time cease providing any or all of the Services at our sole discretion and without notice.“; Art. 3 Business Agreement: „We may terminate or suspend this Agreement or any Service for any reason at any time by notice to you. You may terminate this Agreement or any Service for any reason at any time by the means then specified by Amazon.“.

4143 <https://sellercentral.amazon.com/gp/help/external/G200370560>.

4144 <https://www.politico.eu/article/amazon-europe-competition-giveth-and-amazon-taketh-away/>.

sport shoes”) whilst the vast majority is generic (“sport shoes”), the power of listings is tremendous.⁴¹⁴⁵

In the future, the termination will require 30 days’ notice. In case of extraordinary termination, ie a termination based on alleged breach of legal rules by the seller), Amazon will inform the seller and provide reasons, unless this would require Amazon to disclose details on its control system for fraudulent behaviour.

Liability

Under the existing rules until July 2019, Amazon is granted a comprehensive limitation of liability, towards third-party sellers and customers.⁴¹⁴⁶ Interestingly, in a recent ruling by the 3rd US Circuit Court of Appeals in Philadelphia⁴¹⁴⁷, Amazon was found liable for a defectuous product sold through Marketplace by a third-party seller. With the announced changes in the aftermath of the agreement reached in the Bundeskartellamt proceedings, Amazon will be liable in its European activities to the same extent as sellers for intent or gross negligence and for any breach of major contractual obligations.

Dispute resolution

The established rules foresaw mandatory arbitration as dispute mechanism, insofar as legally permissible⁴¹⁴⁸; for court proceedings, Luxemburg was given as only competent jurisdiction. With the current reform, Amazon has given up the exclusivity of Luxemburg as competent jurisdiction, even where permissible under international private law.

1.2.4. Needs and barriers

While Amazon retains the top spot in the online retail market, it is precisely the spread of its ecosystem that exposes it to a wide range of competitors and, threats of substitutes and new entrants. Amazon describes a number of factors that could result in detriments to its ecosystem which becomes vulnerable essentially through its complexity and interconnectedness. In essence, it is built around Amazon’s ability to predict customer demand through data and thereby optimize fulfilment. Fluctuations can result

⁴¹⁴⁵ <https://www.marketplacepulse.com/articles/only-22-of-searches-on-amazon-include-a-brand-name>.

⁴¹⁴⁶ Art. 8 Business Agreement: „WE WILL NOT BE LIABLE (WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE, PRODUCT LIABILITY, OR OTHER THEORY), OR OTHERWISE) TO YOU OR ANY OTHER PERSON FOR COST OF COVER, RECOVERY, OR RECOUPMENT OF ANY INVESTMENT MADE BY YOU OR YOUR AFFILIATES IN CONNECTION WITH THIS AGREEMENT, OR FOR ANY LOSS OF PROFIT, REVENUE, BUSINESS, OR DATA OR PUNITIVE OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO THIS AGREEMENT, EVEN IF AMAZON HAS BEEN ADVISED OF THE POSSIBILITY OF THOSE COSTS OR DAMAGES. FURTHER, OUR AGGREGATE LIABILITY ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED WILL NOT EXCEED AT ANY TIME THE TOTAL AMOUNTS DURING THE PRIOR SIX MONTH PERIOD PAID BY YOU TO AMAZON IN CONNECTION WITH THE PARTICULAR SERVICE GIVING RISE TO THE CLAIM.“

⁴¹⁴⁷ Case No No. 18-1041, available at <https://www2.ca3.uscourts.gov/opinarch/181041p.pdf>

⁴¹⁴⁸ Art. 19 Business Agreement.

due to factors arising at all stages, from a healthy customer base to regulation and usage habits in e-commerce, IT infrastructure, changes in the product market, legal proceedings, investment strategies and external threats such as cybercrimes and terrorism.⁴¹⁴⁹ Currently, counterfeit reduction and competition by both bigger and niche online retail services are high on Amazon's agenda, since switching costs for consumers to other retailers are still fairly minimal. For its international business activities, a favourable regulatory landscape to Internet business and e-commerce in particular is vital.

1.2.5. Summary of the Case study

Many features of Amazon's ecosystem of today already shine through, rudimentarily of course, in mission statements of the early years. The use of data across its services combined with high investments in consumer loyalty has spurred the diversification of Amazon's services and made it an exemplary case of an ecosystem, namely a one-stop shop and first address for many consumer services. The cloud-based services developed for its own operations have been transformed into a service in its own right, AmazonWeb-Services, that forms a central pillar of Amazon's business model independent of the retail activities. To govern the ecosystem, most importantly on Amazon Marketplace, Amazon uses strict terms deployed legally and technologically through listings towards third-party sellers. To what extent these are used solely to guarantee a level of quality and homogeneity of the Marketplace offers or also to put own products and services in an advantageous situation is currently under investigation by several competition authorities.

1.3. Airbnb^{4150*}

1.3.1. Nature of the competitive game

Spurred by market leader Airbnb, the platform economy is transforming the short-term rental market, typically dominated by hotels with stable business models and market structures. Its rapid growth has not only made them a serious competitor for the hospitality industry and travel sector more widely but is forming novel ecosystems of related digital and analogous services. Alongside, this transformation impacts on city economics, influencing tourism destinations, the composition of neighbourhoods as well as concepts of "mobility" and "home".

1.3.1.1. Airbnb's story of growth

Airbnb, Inc., headquartered in San Francisco, is a global online marketplace for home-sharing and short-term rentals of private homes and apartments. It largely does not own

⁴¹⁴⁹ Amazon, Inc. Annual Report 2018, available at <https://ir.aboutamazon.com/static-files/0f9e36b1-7e1e-4b52-be17-145dc9d8b5ec>.

⁴¹⁵⁰ * Klaas Hendrik Heller.

real estate of its own but acts as a broker between „guests“ and „hosts“ and receives commissions from every booking. Founded in 2008, Airbnb today has 6M+ listings by 650K+ hosts in 191+ countries.⁴¹⁵¹ On an average night, 2M+ people are staying on Airbnb per night. In New York, for example, Airbnb listings make up around 20 % of the guest room supply (globally: 5.4 %).

Airbnb has not released full company reports, but its increase in guests up to 500M by the end of the first quarter of 2019. In the third quarter of 2018, Airbnb announced that it had passed \$1 billion in its quarterly **revenue**.⁴¹⁵² During financing rounds in 2016 and 2017, it had been valued at over \$30 billion. Airbnb is expected to have its IPO in 2019 or the near future. Initially supported by Y Combinator, Airbnb has received significant venture capital investments since 2010, including a 1.5 billion investment by General Atlantik and others in June 2015, a billion by GPMorgan Chase & Co in June 2016 and a combined billion by Capital G in September 2016 and March 2017.

The US continues to be the largest **geographical market** for Airbnb but it is said to have room to grow especially in emerging markets in Africa and India. In China, it is facing some local competition by rivals Tujia and Xiaozhu. Lately, Airbnb is partnering with property developers to turn entire buildings into Airbnb listings, under the auspices of a hotel-like brand, Niido. Through this, Airbnb plans to own 14 home-sharing properties by 2020.

1.3.1.2. From homesharing to hotel business: Airbnb's reconfiguration of markets

In the early phases of operating, Airbnb hosts were for the most part relatively typical households seeking to generate extra income by renting out rooms or their entire residence while away. Over time, Airbnb bookings have become concentrated among more professional „hosts“ that act similarly to miniature hotel companies and rent out entire homes all year long. The number of so-called „multi-hosts“ (namely hosts with more than one listing on Airbnb) is growing faster than the single-hosts.⁴¹⁵³

As a consequence, Airbnb today intersects different markets, notably homesharing, rental agencies, hotel services, hostels, as well as full-service booking agencies. Competition among Airbnb and hotels is therefore growing. While differences in the type of demand remain (with hotels having more male, business, shorter and week-days guests)⁴¹⁵⁴, Airbnb's current strategy eg involves expanding in the business travel, family leisure and upscale market segment. The latter can be manifested by a new service, Airbnb Plus, as well as partnerships with Luxury Retreats. Compared to hotels, Airbnb carries a considerably smaller risk since it owns no inventory itself and can react more fluidly to market change. Unlike hotels whose inventory is flex, Airbnb hosts can more

⁴¹⁵¹ <https://press.airbnb.com/fast-facts//#/en/>.

⁴¹⁵² Cf <https://www.recode.net/2019/3/19/18272274/airbnb-valuation-common-stock-hoteltonight>; <https://www.cnbc.com/2019/01/15/airbnb-sustains-profit-as-it-heads-toward-ipo.html>.

⁴¹⁵³ <https://www.handelszeitung.ch/unternehmen/migros-ist-ein-heimlicher-multi-auf-airbnb-1500249>.

⁴¹⁵⁴ For more details cf str, Airbnb & Hotel Performance. An analysis of proprietary data in 13 global markets, 2017, available at http://www.str.com/Media/Default/Research/STR_AirbnbHotelPerformance.pdf.

easily add and remove supply and follow market trends, both with regard to new destinations and time periods of high demand. More importantly, it outperforms hotels with regard to parameters linked to the “experience economy”, such as personalization, localness, hospitableness, serendipity, and ethical consumerism.⁴¹⁵⁵

After a first phase of denying direct competition between Airbnb and hotels, followed by a second phase of hotels actively attacking the Airbnb business model for circumventing regulatory standards, hotels are currently seeking to participate in the business model by offering rooms on homesharing platforms and adding homesharing attributes to their properties. For instance, Accor has purchased Onefinestay and build a new brand (Jo & Joe); while Hyatt and Marriott both partner with homestay platforms (Oasis; Tribute Portfolio Homes respectively).

1.3.2. Business Models

As a broker, Airbnb allows homeowners (and also tenants) to add another source of revenue from their homes by decreasing the transaction costs for short-term rentals (such as advertising, screening of tenants, alternative accommodations for themselves). As a consequence, short-term and long-term rentals could be mixed more easily, while short-term rentals continue to be more lucrative. Airbnb itself essentially generates revenue through fees charged to both hosts and guests for every booking. It does *not* use advertising to other sites as a source of revenue. In addition to being a home broker, Airbnb entered the travel events sector (“Airbnb Experiences”) in 2015.

The **pricing of individual listings** however is ultimately to be controlled by the host. Hosts are facing the difficulty that no two listings are wholly comparable and Airbnb has an interest of its own in realistic market prices. Therefore, it uses market data based to make so-called “Price Tips” that can also be customized (“Smart Pricing”). Also, independent data initiatives are offering assistance to hosts to determine their pricing strategy.⁴¹⁵⁶

Host service fees are generally 3%, with exceptions in Italy and hosts with a “Super strict” cancellation policy. The fee is calculated from the booking subtotal (including nightly rate and cleaning fee, but not Airbnb fees and taxes). As per official Airbnb communication, **guest service fees** range between 0-20 % of the booking subtotal. It is determined based on a series of factors such as the reservation subtotal, the length of the stay, and characteristics of the listing. Guest fees are degressive in relation to the reservation costs⁴¹⁵⁷, but the actual calculation method remains undisclosed and essentially obscure to users. This two-sided monetization policy (hosts/guests) reflects the idea that Airbnb wishes more flexibility in attracting guests than

4155 M. Mody/M. Gomez, Airbnb and the Hotel Industry: The Past, Present and Future of Sales, Marketing, Branding, and Revenue Management, Business Practices, Fall 2018, available at <https://www.bu.edu/bhr/2018/10/31/airbnb-and-the-hotel-industry-the-past-present-and-future-of-sales-marketing-branding-and-revenue-management/>.

4156 See eg <https://airbnb.design/smart-pricing-how-we-used-host-feedback-to-build-personalized-tools/>.

4157 <https://www.airbnb.ie/help/article/1857/what-is-the-airbnb-service-fee>.

hosts. Airbnb is constantly reviewing its fee policy, testing eg an increased host fee for hosts coming from Google Ads in 2016⁴¹⁵⁸ and, more recently, an option for hosts to include the totality of fees into their costs. This option which is “recommended” to hosts in the Airbnb interface, leads to a new standard Fixed Fee format at 14 %.

Airbnb’s **business model** has been described as **highly transformative** in a recent Harvard Business Review study which highlighted (1.) the way Airbnb personalizes the service to customer needs, (2.) its implementation of a new asset sharing regime that unlocks value for both sides, (3.) its new alliances within its ecosystem and (4.) an agile and adaptive organizational structure.⁴¹⁵⁹

At the same time, Airbnb has sparked controversy related to the **social costs of its business model** which are generally seen in higher housing costs for city residents through the decrease of long-term housing offers, the loss of city tax revenue, negative externalities through short-term rentals (generally addressed by zoning laws) as well as negative impact on employment quality in the cleaning and maintenance sector which becomes more informal as compared to the classical hotel business. A study⁴¹⁶⁰ on the impact of Airbnb in predominantly Black NYC neighborhoods found that Airbnb hosts are 5 times more likely to be white and Airbnb host population is 74% white (compared to 13,9 % of residence population). The economic benefits of Airbnb accrue disproportionately to white residents and Airbnb hosts, leading to racial gentrification.

The data visualization project „Inside Airbnb”⁴¹⁶¹ scrapes listing data from Airbnb to illustrate the shift towards highly available and multi-listings that are less likely to be used as residential housing.

City	Listings	Percentage of entire homes	Average price/night	Occupancy rate (est.) in nights/year	Listings w/high availability	Percentage of multi-listings
Berlin	22,552	47,5	67 EUR	102	28,2	23,6
Paris	59,881	86,8	111 EUR	92	28,2	19,9
New York	47,542	50,2	146 USD	110	45,5	27,3
London	77,096	55,5	112 GBP	86	41,8	46,6
Beijing	25,921	59,1	600 CYN	59,1	86,7	76,4

1.3.3. Ecosystem

Airbnb stands at the center of an ecosystem that englobes a constellation of products,

4158 See https://all-about-airbnb.com/post/127174229801/airbnb-hidden-revenue-hack-extra-host-fees-google-ads?utm_campaign=google_ads_fees&utm_medium=link&utm_source=quora.

4159 S. Kavadias/K. Ladas/C. Loch, The Transformative Business model. How to tell if you have one, Harvard Business Review 2016.

4160 <http://insideairbnb.com/face-of-airbnb-nyc/>.

4161 <http://insideairbnb.com/>.

organizations and people across conventional industry clusters which are connected through the Airbnb platform. Beyond the homesharing service strictly speaking, the ecosystem facilitates a “travel experience” more widely.

Hosts

Participants to this ecosystem are first and foremost the hosts. Those include single-hosts as well as multi-hosts, among them a growing number of conventional hotels and hotel-like services. Airbnb has been seeking to bridge with hotels through mergers and by granting them access to its platform. Hosts are free to decline or accept guests within the boundaries of Airbnb’s antidiscrimination policy and can set up house rules.

The relation between Airbnb and hosts as well as among hosts is crucially determined by the Airbnb **search results algorithm**. The nearly 100 features which the algorithm considers are confidential, but Airbnb states that among them are guest needs (derived from guests’s previous bookings, profile and user behaviour), listing details and trip details. Generally, Airbnb boosts listings with high click-to-booking rates, positive reviews, high customer responsiveness with low rejection rates as well as competitive prices. Also, hosts with good performance can obtain the ‘superhost’ status which grants them credibility towards guests and is a tool to tie them to the Airbnb platform.

An important set of data is acquired through guest and host reviews. Remarkably, the average rating on Airbnb lies between 4.5-5 (highest possible rating), while on TripAdvisor, it is only 3,8/5. Some suggest that this gap results from the specifics of the sharing economy.

Airbnb is concerned with maintaining a high quality of listings and considers removing an established experience listing (>20 reviews) if the average rating falls at or below 4.7.

Airbnb’s Terms and conditions seek to standardize the booking procedure and categorize listings to offer guests the benefit of familiarity in case of repetitive booking. Interestingly, while Airbnb disposes of a dispute resolution mechanism for complaints between users and guests, this feature is barely advertised and put to the forefront, possibly in order to draw less attention to the possibility of an unpleasant occurrence.

Travelling amenities

By adding the pretty robust “Experiences” section, Airbnb has entered the classical travel agency market. Guests are enabled to book a variety of adventures, services (like restaurant visits – through the acquisition of Resy in 2017).

Host service suppliers

Among the services that have emerged in order to facilitate the organizational side of Airbnb bookings, Guesty offers a one-stop service platform to manage listings across online travel agencies as well as guest-centric tools such as a unified inbox, automated tasks, and 24/7 guest communication services. Competitors include Vacasa, Turnkey,

Airsorted, and Kigo. Airbnb aims at standardizing the logistical procedure (check-in, communication) for a smooth guest experience.

A series of services offer alternative pricing algorithms to hosts, such as “Market Minder” (by AirDNA) via web scraping.

Local facility services

The Airbnb ecosystem has spurred the emergence of facility services tailored to the needs of Airbnb listings. Some tools offer eg check-in/concierge services (GuestHop) or cleaning (Handy).

Airbnb offers US hosts to take the „Living wage pledge”, a commitment to paying cleaners and other personnel that assists in the maintenance of apartments a minimum wage determined by experts around the National Domestic Workers Alliance (NDWA). The respective listings will have a badge displayed online allowing guests to give preference to such places.

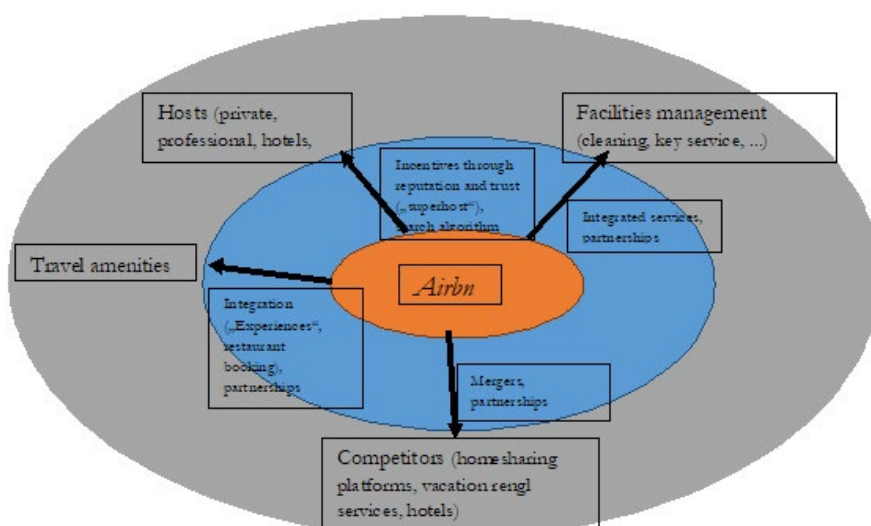
Competitors

Airbnb’s history of mergers illustrates a transformed sense of the markets in which it operates and proves the importance of acquisitions for Airbnb’s story of growth. Initially, Airbnb acquired competitors with similar business models (such as Accoleo in 2011) and over time had sufficient growth rates to outperform others. While Airbnb is leading globally within the online homesharing platform market, its merger activities have transformed and focused on a better IT infrastructure (eg pre-installation on Telekom mobile phones), community-building (eg Bitrefill, enabling bitcoin purchase of gift cards), integration with other travel services and expansion into the hotel sector, including luxury retreats.

Today, most competitors in Europe and the US have roots in the hotel business or vacation rentals. Airbnb’s most notable competitor is HomeAway, the owner of US-based Vacation Rental By Owner (VRBO) that specializes in vacation rentals of entire homes of all types. It was founded in 1995 and belongs to HomeAway since 2006.

Competitor Wimdu, held by Novasol, was a Berlin-based home-sharing platform founded in 2011 with around 1M users and 350K listings in 150+ countries but was shut down in 2018. It had earned more than 90M € of financing and merged with a large competitor 9flats in 2016 but failed to become profitable.

In China, a market that Airbnb is pursuing a growth strategy in (under the name “Aibiy-ing”, since 2017), local competitors are Oyo, Tujia.com, and Xiaozhu.



1.3.3.1. Contractual Governance

Both hosts and users are bound by the Airbnb Terms of Service⁴¹⁶² as well as related rules, such as the Privacy Policy⁴¹⁶³ and the Host Guarantee⁴¹⁶⁴. As regards other actors in the ecosystem, ie facilities managers and booking assistants, little information is publicly available. Airbnb's terms limit Airbnb's role to a mere matching platform and cautiously stipulate that Airbnb is neither party to the agreement between host and guest, nor responsible for the listing (Sect. 1.2). Airbnb reserves a right to termination after 30 days' notice (Sect. 15.3). For claims brought in the US, the dispute mechanism foresees mandatory arbitration.

1.3.3.2. Soft Governance

Strong soft governance incentives are provided through reviews and the listing algorithm. Airbnb's terms explain that the placement and ranking of listings is subject to such an algorithm that includes a series of factors, essentially making its inner processing impossible to predict from a host perspective (Sect. 7.1.6). Reviews (Sect. 10) are an important element as part of the algorithmic listing decision and a guest's booking decision. Weak reviews can lead to a suspension from hosting on the platform. Invitations and reminders to submit a review are presented as a personal curtesy towards guests/hosts and a service to the community; whilst for Airbnb, reviews provide a most valuable data set. Likewise, users are invited to fill in user profiles, respond to surveys, post in community forums and share experiences to improve their "user experience" with Airbnb (Privacy Policy, Sect. 2.1). As per Privacy Policy, Airbnb collects geo-location information, usage information (search history, activities on the Airbnb platform), log data and device information, cookies and payment data. When a user links, connects or logs in to Airbnb through a third party service, Airbnb may receive information via this third party

4162 <https://www.airbnb.com/terms>.

4163 https://www.airbnb.de/terms/privacy_policy.

4164 https://www.airbnb.de/terms/host_guarantee.

service, such as friends lists and profile information. Also, further background information on criminal convictions may be obtained from public records in the US.

1.3.3.3. Technological Governance

While Airbnb claims to act, as per its terms, as mere broker, it regulates the communicative and market setting between guests and hosts in important ways. For once, Airbnb restricts the channels of communication in order to prevent off-platform deals that would jeopardize its business model and revenues. Besides, Airbnb makes recommendations to hosts as regards pricing and other features of the listing, based on its algorithmic comparisons. Here, Airbnb clearly takes a stronger guiding role than eg eBay does, echoing its stronger interest in homogeneity in the presentation of listings in order to create consumer loyalty.

1.3.4. Needs and barriers

Airbnb's business model offers homeowners a convenient platform to realize short-term rental rents ('excess capacity') and guests a cheaper, more diversified alternative to a hotel stay. The digital interface and data streams of Airbnb have solidified its position on the market. Challenges here are the perpetuation of a high listing quality and guest satisfaction. Currently, user complaints arise for the most part due to bookings cancelled by the host (20,5% of user complaints), scams (15,4 %), unsafe or unpleasant conditions (13,5 %), differences between the unit and its listing (12,2 %), and discrimination (1,1 %). In addition, the degree of capacity utilization continues to be lower than in hotels.

Current regulatory barriers include a fragmented local legal landscape with regard to short-term rentals. Not only has Airbnb faced claims of tax circumvention and lack of a level playing field with hotels, also major cities including New York, Barcelona, Paris and Berlin have enacted restrictive legislation on short-term rentals. Airbnb has been vocal in the public debate around its business model through ads, interviews and lobbying.

1.3.5. Conclusion

Airbnb's story of growth is paradigmatic for a digital platform and ecosystem, both through its strategy of acquisitions and its current regime of private governance. By infusing it with data-driven and digital technology, Airbnb has reconfigured the short-term rental market and today forms the center of an ecosystem that transcends the boundaries of conventional business sectors. The private governance regime ensures that Airbnb can act as a mere broker, shielded from liability in a legal sense and exempted from the need to invest itself in infrastructure and labour for listings. In other words, the character of Airbnb as a digital network, as compared to an owner of real estate, is preserved through the governance regime.

1.4. Tinder^{4165*}

1.4.1. Nature of the competitive game

1.4.1.1. The specificity of the online dating industry

For the sole US market, the online dating industry has generated around \$3 billion in 2018⁴¹⁶⁶ with an estimated 50 million Americans using websites or mobile dating apps. The market is booming as the use of online dating has tripled amongst the young (18-24) from 2013 to 2015⁴¹⁶⁷. The online dating market has also proved to be attractive for other categories of adults with the share of 55 to 65-year-old people doubling between these same two years. Specialists predict no downturn with revenue expected to reach a new high by 2020.

Online dating has benefited from the success of social-networking platforms. While, Facebook introduced the concept of making friends online, apps such as Tinder have extended it to the dating sphere. In a world where socialisation has become steadily more digital, the success of online dating platforms may thus be attributed to a more general trend. However, social-networks and online dating apps do not target strictly identical markets. The industry of online dating differentiates itself from other social platforms by the inherent purpose it seeks to pursue. While social networking helps users find a friend, dating platforms help users find a date. Obviously, those who decide to give online dating a try are likely to already be familiar with the social networking world. However, social network users are not necessarily keen on engaging in online dating. For this reason, the two industries do not appeal to the same exact consumer base.

While not being strictly alike, the worlds of social-networking and online dating appear to be highly complementary. The most recent innovative dating apps have indeed come up with new strategies to capture consumers' data. *Tinder*, for example, offers its consumers to get access to the service for free and allow them to link up their other social media accounts in order to fasten the registration process. Most users thus associate their account with *Facebook*, *Spotify* and *Instagram*⁴¹⁶⁸. If the platform does not generate direct benefits from it, it manages to grow a substantial user base and therefore capture a big amount of data.

4165 * Thomas Blozovski.

4166 M. Lin. 'Online Dating Industry: The Business of Love' (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>.

4167 A. Smith. '15% of American Adults Have Used Online Dating Sites or Mobile Dating Apps' (Pew Research Center, February 2016). <https://www.pewinternet.org/2016/02/11/15-percent-of-american-adults-have-used-online-dating-sites-or-mobile-dating-apps/>.

4168 M. Lin. 'Online Dating Industry: The Business of Love' (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>

1.4.1.2. The online dating value chain

The extraction of value within the online dating value chain follows an input-output production process that may be segmented into three steps. From the collection of data to its monetisation, online dating platforms manage to generate revenues by several means. Firms that do not directly belong to the dating sphere take their part in this process.

The first segment includes firms such as social networking platforms and dating apps themselves. This primary activity boils down to the capture and storage of users' data. Old-fashioned platforms such as *Match.com* engage in this process by their own means, requiring users to give as much information as possible in order to implement an efficient pairing system. As for emerging platforms such as *Tinder* or *Bumble*⁴¹⁶⁹, they allow users to access the service for free and to link their social-networking platforms such as *Facebook*, *Instagram* or *Spotify*. By offering the possibility to register via *Facebook*, *Tinder* accesses precious data and appeals to a large user base. This data-capture segment is essential to perfect algorithms and adapt advertising and making it more accurate. If capturing data is a priority for a majority of dating apps, most digital platforms engage in such practices as a large database favours more accurate advertising. In a report published by *McKinsey*⁴¹⁷⁰, Alessio Botta, Nunzio Digiacoimo and Kevin Mole outline the importance of capturing two types of data in the monetisation process. Enterprise level data, in the one hand, comprise information such as customer preferences, needs assessment etc. Supplemental data, in the other hand, are the raw data obtained through various means such as, for *Tinder*, social media linking. Companies get access to a mix of both types of data. By combining these two categories, which range from sociodemographic profiles to online preferences, platforms may start to create value.

The second segment includes firms that advertise through the swapping process as well as dating apps themselves. It boils down to the user's profile set-up and its pairing with other users' profiles. When swiping to find potential matches, users of dating apps stumble on numerous ads. Thanks to the previous collection of data, the platforms can provide advertisers with key data in order to be more accurate in the way they target their consumers. This segment constitutes a first step in the monetisation process. And with the online dating market booming, marketers have seen their incentive to use such platforms growing. In May 2015, *Twentieth Century Fox* launched a now famous advertising campaign on *Tinder*, using the original concept of embedding four of their new movie's characters into the swiping process⁴¹⁷¹. Users were free to like one of the actors and could earn the possibility to catch an early local screening of the movie. The same year, *Starbucks* reached

4169 M. Lin. 'Online Dating Industry: The Business of Love' (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>.

4170 A. Botta, N. Digiacoimo, K. Mole. 'Monetizing data: a new source of value in payments' (September 2017 – McKinsey&Company). <https://www.mckinsey.com/industries/financial-services/our-insights/monetizing-data-a-new-source-of-value-in-payments>

4171 L. Johnson. 'Brands Make a Match With Dating Aps' (May 2015 – Adweek). <https://www.adweek.com/digital/brands-make-match-dating-apps-164805/>

an agreement with *Match.com* to launch a commercial campaign through their website. Other ways of advertising through online dating have been experienced such as reward-ed videos. This technique, utilised by *Meetme*, consists of in-app videos that the user can watch in order to access the premium subscription features without paying the fee.⁴¹⁷²

The last identified segment includes dating apps and consists of direct data monetisation through the offering of enhanced features. This type of monetisation remains the first source of revenue for dating apps. If most dating apps are free to access, they manage to make a fringe of their userbase pay for premium versions of the service. *Grindr*, for example, generates 75 percent of its revenue from its enhanced version, which can cost users from \$12 to \$60 a month.

1.4.1.3. A rapidly-changing horizontal competition

A two-tier competition

The horizontal competition within the online dating industry has been through big changes in the past few years with the emergence of platforms such as *Tinder* or *Bumble*. There are basically two types of consumers that can be targeted within the dating market. The first type comprises people searching for serious relationships, thus willing to put effort and money in the dating process. The other type, which tends to gather a younger user base, comprises people who are joining online dating apps for fun. The major players all possess their own competitive advantage and basically fall within two categories⁴¹⁷³. *Match.com*, for example, uses a system of monthly subscription that keeps non-serious users away from the platform. By doing so, they ensure their customers to meet only with other dedicated users. As for *Tinder-like apps*, they managed to succeed in the market by offering a free and intuitive experience. Some platforms utilise the same features and concept but target specific niches within the online dating industry. *The League*, for instance, appeals to young and ambitious professionals. *Grindr* is very similar to *Tinder* but essentially targets the gay community. Basically, the online dating industry actors present rather similar concept and features but differentiate from each other on the user base they try to target.

Tinder's story of growth

"*Match, Chat, Date*". *Tinder* has positioned itself as a leader in the dating market by developing an entertaining approach. With 2 million matches a day, 1 million physical encounters a week and a presence in 190 countries, *Tinder* has broken the classic cultural barriers of seduction and turned it into a game. Sean Rad, one of the founders, initially created the application to alleviate the stress of rejection. The app then made multiple

4172 D. Priftis. 'Monetization models in dating apps – it's a match' (February 2019, Pollfish). <https://www.pollfish.com/blog/app-monetization/monetization-models-in-dating-apps%E2%80%8A-%E2%80%8Aits-a-match/>

4173 M. Lin. 'Online Dating Industry: The Business of Love' (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>.

adjustments to optimize the concept and support its development. After winning the *TedCrunch's Crunchie Award* for "Best New Startup of 2013", *Tinder* integrated the swiping feature in 2014, which aimed at gamifying the platform. The *Rewinding* and *Superlike* features incorporated in 2015 also reinforced this aspect by providing "bonuses" to users. Besides the user interface, the structure of the platform was also part of the success. *Tinder* indeed implemented a competitive system by using "Elo Scoring". This algorithm granted an indicative rating of "desirability" based on profile information and matches obtained. It allowed users with similar "desirability scores" to meet each other. Today the app has refocused on a system based on online activity by rewarding the most regular users without completely giving up on the algorithm.

Throughout its evolution, *Tinder* has become the biggest contributor of the *Match Group* turnover, representing nearly 23,5% of its revenues. The brand has capitalized on its innovative principle by protecting the concept and securing it economically and legally.

Facebook entry in the market

However, the dynamics could potentially change with the arrival of one big competitor from the social-networking value chain. *Facebook* has indeed recently decided to enter the online dating market thus threatening the leadership of *Match Group*.⁴¹⁷⁴ Its desire to compete in the online dating industry has been followed by a period of test, with the new dating platform being launched in Columbia. The American company will seek to attract customers searching for serious and long-term relationships, thus taking its distance from *Tinder*-like apps. Despite its late entry in the market combined with its desire to stick to the "old-fashioned" online dating concept, *Facebook* can rely on two non-negligible advantages. First, most people have a *Facebook* account, meaning that engaging in an online dating experience could become normalised, tempting more consumers that were reluctant to participate in an online dating activity. Second, *Facebook* has a long-time experience in social relationships and benefits from a unique algorithm based on factors like common friends and events' attendance. It would be able to use its precious data and already plans to introduce new features such as the possibility to only date people who attended the same kind of events for example.

1.4.2. *Tinder's* Ecosystem

As mentioned above, two types of platforms compete by respectively targeting dedicated users and entertain-oriented ones. Nonetheless, the online dating market is dominated by one company, the *Match Group*, as it holds 10 dating platforms, including the two most successful ones, *Tinder* and *Match.com*.⁴¹⁷⁵ It therefore manages to compete in both tiers of the online dating industry. As part of the holding, *Tinder* must implement

4174 L. Matsakis. 'Facebook is testing its dating service. Here's how it's different from tinder' (Wired Magazine – September 2018). <https://www.wired.com/story/facebook-dating-how-it-works/>

4175 M. Lin. 'Online Dating Industry: The Business of Love' (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>.

its strategy within a global approach. Tinder's ecosystem comprises the other platforms owned by the Match Group, direct competitors and other social-networking platforms.

1.4.2.1. 1st layer: the other nine platforms owned by *the Match Group*

The 10 companies that form the *Match Group* form the first layer of *Tinder's* ecosystem. Namely, these companies are *Match.com*, *PlentyofFish*, *Meetic*, *OurTime.com*, *Twoo*, *Friend-Scout24*, *OkCupid*, *Hinge* and *Pairs*. If holding 10 companies competing within the same market may seem counter-productive, these platforms seem in fact to be complementary. The group states in its 2018 10k form: "*our strategy focuses on a portfolio approach of various brands in order to reach a broad range of users. Our brands are collectively available in over 40 languages all over the world*"⁴¹⁷⁶. *Match.com*, the first platform launched, targets people who seek serious relationships. The platform filters users by charging a monthly fee then dissuading non-committed users from accessing the service. As for *Meetic*, it was the first platform to be available from all kind of technologies (smartphone, tablet, website, wearables) while offering real life events. *Tinder* was launched in 2012 and was aiming to attracting users searching for a more entertaining experience. *OurTime* targets singles aged over 50 while *Pairs* focuses on Asian markets. As part of the Match Group, *Tinder* must undertake an effective strategy that takes into the other platforms.

1.4.2.2. 2nd layer: direct competitors

Tinder also interacts with its direct competitors and tries to keep thriving in the business. Since it has had a massive success after its launched in 2012, the platform has grown increasingly more threatening. Justin McLeod, CEO of *Hinge* described *Tinder* as "*the Gorilla in the casual form of the spectrum*". *Tinder's* main competitors tend to have similar concepts but may still be threatening as they introduce original features. *Bumble* has come up with an original concept as it utilises the same system as *Tinder* with a twist, only women can send the first message. Aware of the threat that it could represent for its most successful platform, the *Match Group* unsuccessfully tried to acquire *Bumble* with a \$450 million bid in 2017. The holding company keeps up with its offensive strategy as it filed a lawsuit against *Bumble* in March 2018.⁴¹⁷⁷ It accused the competing platform of using features that were very similar to those set up by *Tinder*. *Happn* is another rival platform that could threaten the success of *Tinder*. It has developed an original concept that allows users to hook up with people they walked past in the street. This concept has the advantage of offering potential dates to people that already met, thereby making the online dating process less artificial. However, despite competing with ingenious platforms, *Tinder* remains far ahead of its main rivals. According to Statista, a German online portal for statistics, the platform gathered 8.2 million users in America in 2017,

⁴¹⁷⁶ Match Group, Inc (February 2019) 2018 10K form.

⁴¹⁷⁷ Igor Bosilkovski. *Tinder Stings Bumble With A Lawsuit, Bumble Says it Swipes Left*. (March 2018, Forbes). <https://www.forbes.com/sites/igorbosilkovski/2018/03/20/tinder-stings-bumble-with-a-lawsuit-bumble-says-it-swipes-left/#1afdf5b0512c>

against 1.9 million users for *Grindr* and 1.4 million users for *Bumble*.⁴¹⁷⁸

1.4.2.3. 3rd layer: social networking platforms

Tinder interacts with the social-networking platforms it has previously established a relationship with. These platforms are *Spotify*, *Instagram* and *Facebook*. An estimated 30% of *Tinder* users register by linking their *Facebook* account. The dating platform states in its terms of use: “if you use *Facebook* to access *Tinder*, you must authorize us to access certain information from *Facebook* to use *Tinder*.”⁴¹⁷⁹ In fact, the two companies have access to respective database, and it has been revealed in a report issued by the German mobility security company *Mobilsicher*⁴¹⁸⁰ that *Facebook* was gathering information from its partner platforms, including *Tinder*. They have access to users’ activity on the app, IP address and private and dating profiles. The American company set a policy that states it can gather information from third party apps through the Software Developer kit, system that allows users to login via *Facebook*. As for *Spotify* and *Instagram*, they can be directly connected to the user’s account. *Tinder* expended its integration with *Spotify* after the platforms first worked together in 2016. Users can now share small clips while chatting⁴¹⁸¹. As for *Instagram*, it allows users to access potential matches’ photos. The relationship *Tinder* builds with other digital platforms aims at perfecting the pairing system by connecting different database. In the meantime, it allows platforms to access each other’s database therefore collecting key information.

Such social-networking platforms may also turn out to be competitors for *Tinder*. Apart from *Facebook*, which is entering the market of online dating, as mentioned above, other social media such as *Instagram*, *VK* or *Snapchat* are already potential way for people to meet partners.

1.4.2.4. 4th layer: Users (P2C relations)

Unlike the other cases studied, *Tinder* does not act as an intermediary between retailers and buyers or between homeowners and hosts. In other words, *Tinder*’s core activity boils down to offering a service rather than providing businesses with a platform that would allow them to generate money. As a consequence, its governance model is mainly based on the contractual relationship it maintains with its users (P2C relations).

4178 M. Lin. ‘Online Dating Industry: The Business of Love’ (Finance, September 2018). <https://www.toptal.com/finance/business-model-consultants/online-dating-industry>.

4179 *Tinder* Terms of use. <https://www.gotinder.com/terms>

4180 Annie Palmer. Facebook gathers private data from popular apps including *Tinder*, *OkCupid* and *Pregnancy+*, report claims (December 2018, Dailymail). <https://www.dailymail.co.uk/sciencetech/article-6518015/Facebook-gathers-private-data-popular-apps-like-Tinder-OK-Cupid-Pregnancy-report-claims.html>

4181 Ashley King. Spotify Quietly Expands Its *Tinder* Integration (January 2019, Digital Music News). <https://www.digitalmusicnews.com/2019/01/15/spotify-tinder-integration/>

1.4.2.3.1. Contractual relationship and potentially abusive clauses

With the digital economy occupying an increasingly important space in today's societies, legislations in the areas of competition law and consumer protection often prove to be irrelevant or insufficiently strict. Platforms may take advantage of this temporary legal "limbo" to impose abusive clauses on consumers. As for Tinder, it is not known to be a particularly abusive platform when it comes to contractual relationship. However, its terms of use contain certain clauses that have been denounced by the European Commission and labelled "abusive" in its most recent report on the matter⁴¹⁸²:

Right to suspension

Amongst the practices denounced by the EU executive body is the *"platform operator's right to terminate the contract without cause with a notice of less than six months"*. Tinder indeed reserves the right to terminate any user's account if it considers he has violated this agreement. Moreover, it does not provide any refund for purchases made through the app.

It may also delete any content if it solely considers it goes against the platform's terms of use. It means that Tinder reserves itself the right to define what it believes is a *"threatening or offensive"* post.

Liability

Tinder refuses to take responsibility in the case of service malfunctions or potentially harmful user's post. That practice was named by the European Commission as *"Exclusion or limitation of platform operator's liability"*. As it states in its terms of use, *Tinder "takes no responsibility for any content that you or another user or third party posts, sends or receives through the service."*⁴¹⁸³

In the meantime, the platform refuses to bear responsibility for acts carried out by users deciding to communicate off the service or to meet in person. As written in the terms, users *"are solely responsible for" their "interactions with other users"*⁴¹⁸⁴. The company does not engage in criminal background checks and therefore declines all type of responsibility if users behave in a potentially harmful manner once of the grid.

Wrongdoings carried out by third parties such as advertisers and promoters also fall out of the platform's responsibility. It makes it clear in its terms of use that whenever a user decides to enter directly in contact with a third-party, the latter is newly responsible and governs the relationship.

4182 European Commission. 'Study on contractual relationships between online platforms and their professional users'. (EU Publications. April 23, 2018)

4183 Tinder Inc. 'Tinder Terms of Use'.

4184 Tinder Inc. 'Tinder Terms of Use'.

Privacy

The issue of privacy has contributed to harm Tinder's image worldwide since the platform has often been accused of infringing personal data legislations. One of the abusive clauses listed by the European Commission in its study on platforms' contractual relationships is the provision obliging users to *"grant the online platform a right to use business user's photos or other copyright protected material or trademarks."* Tinder effectively engages in such practice since it gets access to data that users agree to share on the platform, including their Facebook information if they decide to link up their social media account. Such data are used by the platform to monetise the service, mostly by providing them to third parties such as advertisers. Moreover, Tinder grants no compensation to users whose data have been utilised: *"by submitting suggestions or feedback to Tinder regarding our Services, you agree that Tinder may use and share such feedback for any purpose without compensating you"*⁴¹⁸⁵.

Dispute resolution

Regarding dispute resolution, US citizens may not engage in any class action, class arbitration, or other representative action. The only way to challenge the company is to use the service of "Binding arbitration" administered by the American Arbitration (AAA). As a consequence, American users must agree to "give up their right to go to court" unless they fill a small claim request.

Regarding consumers residing in the EU or the European Economic Area, they must follow a different procedure as the European Commission set up its own online dispute settlement platform (ec.europa.eu/odr).

1.4.2.3.2. Soft and informal communication: image and communication

To counter the potential bad effects of its contractual governance, *Tinder* has engaged in a communication campaign seeking to explain its collect and use of personal data. Available in its online blog, the platform indeed provides its public with an easy read containing key information on its privacy policy⁴¹⁸⁶.

1.4.2.3.3. Technological landmark and innovative reputation

The key of *Tinder's* success has arguably been the platform's ability to set new technological landmarks in the online dating market, thus acquiring a strong innovative reputation. It was the first to introduce the "swiping" system thanks to which it is still identified as the number one app for a user-friendly and entertaining online dating experience. It has also developed a unique algorithm, namely the "elo score" system, criticised for its discriminatory nature but still considered as a reference in the online dating industry.

4185 Tinder Inc. 'Tinder Terms of Use'.

4186 Tinder Inc. 'Tinder Privacy Policy' (Tinder Blog, October 2010). <https://www.gotinder.com/privacy-2017-10-26>

1.4.3. Business models

As we have already mentioned the question of business models above, this subpart will be shorter and will seek to explain how the trends occurring within the dating market outline the existence of two clashing concepts. One is booming while the other is slightly losing ground.

Tinder, that leads the US market with 8.2 million active users⁴¹⁸⁷ was the first one to introduce the swiping concept. By also allowing users to link their account with other social media platforms, *Tinder* has been a game-changer in the dating market⁴¹⁸⁸. It has relied on a user-friendly system as it just imports data from Facebook. It was the first dating platform that was solely designed for mobile phones. Also, the swiping system does not let users know if they have not been liked back. This keeps users from developing fear of rejection. *Tinder* competitive advantage boils down to its user-friendly approach. It is easy to use and free, attracting people seeking for entertainment more than serious relationships. This is a huge evolution in the dating market as entertainment has seemed to become the new norm. According to a survey conducted in August 2017, out of 6500 online daters surveyed between the age of 16 and 30, 48% revealed they were mainly searching for fun.⁴¹⁸⁹

The other concept was popularised by *Match.com*. The platform relies on a system of compatibility pairing reached through questionnaires and personal essays. Unlike *Tinder*, the service is not free, and users must pay a monthly subscription. Such a system has proved to be efficient as it sought to address to people who take online dating seriously and are ready to spend a certain amount of money on such sites. However, *Match*-like apps face a double threat. With the rise of *Tinder* and similar platforms like *Bumble*, the dating market has seemed to move towards a more entertaining-centred approach. Also, with *Facebook* entering the market, *Match.com* faces more direct competition with the American giant aiming at taking its distance from *Tinder*'s concept while still offering its dating service for free.

However, it must be taken into account that apps such as *Match.com* and *Tinder* belong to the same group, the *Match Group*, itself owned by *IAC*. Therefore, such clashing concept may be combined in a common corporate strategy. In an article published in *Wired Magazine*⁴¹⁹⁰, Jeff Guibard reacts to the controversy that surrounded *Tinder* after it was sued for implementing 'ageist' measures (the platform decided to charge people over

4187 D. Priftis. 'Monetization models in dating apps – it's a match' (February 2019, Pollfish). <https://www.pollfish.com/blog/app-monetization/monetization-models-in-dating-apps%E2%80%8A-%E2%80%8Aits-a-match/>

4188 L. Nissen. 'Dating in the 21st century: How social media influences relationships on the example of *Tinder*' (August 2017, Duffy Agency). <http://duffy.agency/brandbase/dating-in-the-21st-century-how-social-media-influences-relationships-on-the-example-of-tinder/>

4189 L. Nissen. 'Dating in the 21st century: How social media influences relationships on the example of *Tinder*' (August 2017, Duffy Agency). <http://duffy.agency/brandbase/dating-in-the-21st-century-how-social-media-influences-relationships-on-the-example-of-tinder/>

4190 Jeff Gibbard. 'No, *Tinder*'s pricing is not ageist. It's capitalist' (*Wired Magazine* – November 2015). <https://www.wired.com/2015/03/tinder-is-capitalist/>

30 a higher price)⁴¹⁹¹. His theory is that this decision was a way to draw away users that were willing to put money in the process of online dating, namely older people, from *Tinder*. Even though it seems counter-productive in the first place, this decision could be a smart way to shift these older users towards more serious sites such as *Match.com* and *OKCupid*, since they are part of the same holding.

When it comes to specific pricing model, *Tinder* uses the freemium model. With an average time of 90 minutes a day spent on dating apps, the potential for revenue is huge within the dating sphere.⁴¹⁹² This model gives users access to the basic functionalities of the app for free. While the app generates, in the first place, a weak percentage of its revenues through advertising, it then starts making more money thanks to a system of premium subscription. Users, who first accessed the platform for free, can shift to an enhanced version of the service for a fee. New features include an add-free interface, the possibility to see which users already liked the subscriber's profile etc. *Tinder's* paying user base in 2018 was 4.1 million people achieving revenues of \$800 million⁴¹⁹³.

1.4.4. Needs and barriers

As part of the *Match Group*, *Tinder* is subject to domestic and foreign laws that affect online companies in general. The *Match Group* itself recognises that it is exposed to negligence, various torts and trademark and copyright infringement⁴¹⁹⁴. It is also subject to actions regarding the capture and collection of data. As *Tinder* and other dating apps collect an important amount of data, they must abide by different laws and regulations that apply in the field of privacy and protection of personal data. Such regulations prove to be particularly burdensome in western countries. In EU Law, the General Data Protection Regulation entered into force on May 2018⁴¹⁹⁵. It must ensure that all citizen of the EU and the European Economic Area have data and privacy protected. This legislative act gives the subject to give and revoke his consent at any time when it comes to processing his own data. In the US, no legislation that specifically infringe unlawful data processing exists but privacy statutes are meant to protect citizen from abusive behaviour from platforms.

Amongst the legal proceedings that the Match Group has had to deal with, one has directly involved *Tinder*. The platform has indeed been challenged by Consumer Class Action in regard of its Age-Tiered Pricing⁴¹⁹⁶. After winning the case in first instance, *Tinder*

4191 Match Group, Inc (February 2019) 2018 10K form. <https://www.sec.gov/Archives/edgar/data/1575189/000157518919000020/match10-k20181231.htm#s7B9DF065D554FC5E4E9208A3ADBD02D6>

4192 C. Sammonds 'The Monetization of Dating apps' (June 2018, Innovation Enterprise Channel). <https://channels.theinnovationenterprise.com/articles/the-monetization-of-dating-apps>

4193 D. Priftis. 'Monetization models in dating apps – it's a match' (February 2019, Pollfish). <https://www.pollfish.com/blog/app-monetization/monetization-models-in-dating-apps%E2%80%8A-%E2%80%8Aits-a-match/>

4194 Match Group Inc (February 2019) 2018 10K form. <https://www.sec.gov/Archives/edgar/data/1575189/000157518919000020/match10-k20181231.htm#s7B9DF065D554FC5E4E9208A3ADBD02D6>

4195 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (2016)

4196 Allan Candelore v. *Tinder, Inc.*, No. BC583162 (Superior Court of California, County of Los Angeles)

had to go to the Court of Appeal and then the Supreme Court. If the case has not yet been solved, Tinder claims that the decision of the Superior Court of California, which ruled that age-based pricing differential for Tinder Plus subscription did not violate the law, must be upheld. The platform and the court argued that people under 30 belong to a group with more limited financial means.

Match Group has been brought before court by Bumble in Texas as it was accused of wrongfully obtaining confidential information with the plaintiff⁴¹⁹⁷. Prior to this proceeding, Tinder had tried to acquire Bumble through Match Group, its parent company. If the case is not solved yet, Match Group has, amongst other complaints, accused Bumble of using Tinder swiping trademark.

Another recent case has involved Tinder. This time, it opposed the dating platform with its parent company⁴¹⁹⁸. The complaint states that in 2017 Match Group and IAC made an independent assessment of Tinder valuation through investment banks that led to an undervaluation of the company therefore conducting to the underpayment of Tinder stock options. The New York state court must rule in the course of 2019.

1.4.5. Conclusion

Tinder's success has been built on the platform's ability to attract consumers in search for a more entertained-centred experience. By creating a user-friendly interface, the company has managed to take the lead in the innovation process. Since its launch in 2012, it has steadily extended its market share to become *Match Group's* most lucrative app, therefore dominating the whole online dating market. In the meantime, *Tinder* has developed a singular governance model to frame its relationships with users. Indeed, unlike *Amazon*, *Google* or *Airbnb*, the dating app does not provide a platform for other businesses but directly offers its service to consumers instead. Its contractual governance model therefore focuses on a bilateral agreement with users⁴¹⁹⁹. As the emphasis is put on P2C relations, informal and technological models of governance mainly structure how the platform is perceived by consumers while contractual governance seeks to legally protect the platform from users' complaints. If such contractual relation sparked privacy concerns⁴²⁰⁰, with institutions such as the *European Commission* denouncing abusive clauses, the platform has showcased its ability to innovate and a strong communication to preserve its image.

4197 Bumble Trading, Inc. and Bumble Holding, Ltd. v. Match Group, LLC, No. DC-18-04140 (160th Judicial District Court of Texas, County of Dallas)

4198 Sean Rad et al. v. IAC/InterActiveCorp and Match Group, Inc., No. 654038/2018 (Supreme Court, New York County)

4199 Tinder Inc. 'Tinder Terms of Use'.

4200 Judith Duportail. 'I asked Tinder for my data. It sent me 800 pages of my deepest, darkest secrets' (The Guardian, September 2017).

1.5. Sberbank^{4201*}

1.5.1. Nature of the competitive game

PJSC “Sberbank” is the large state-owned Russian financial institution, whose 50%+1 voting share is owned by the Central Bank of Russia.⁴²⁰² It is currently the largest bank in Russia occupying a share by assets of more than a third of the Russian financial market and about a half in most retail banking businesses.⁴²⁰³

It has been always perceived as a conventional banking institution, though highly reliable in terms of stability. However, lately Sberbank has exhibited a decisive move to transform into a modern, digital ecosystem comprising non-financial services, along with its traditional financial products.

After Herman Gref became Sberbank’s CEO in 2007, Sberbank has started digital transformation along two lines. First, it transformed its traditional financial lines of business in order to provide services through remote and digital channels in a more efficient way.⁴²⁰⁴ Second, since 2013, it has started expansion into the new markets: online payments (Yandex.Money, 2013); targeted online advertisement (Segmento, 2015); cybersecurity (BISon, 2016); automation of business processes (Evotor, 2016); healthcare online platform (DocDoc, 2017); biometric identification (VisionLabs, 2017); real estate (DomClick, 2017); telecommunications (Sbermobile, 2017); e-commerce (Yandex.Market, Beru.ru, Bringly.ru, 2018); cloud services (SBCloud, 2018); corporate messenger service (Dialog Enterprise, 2018); business outsourcing and optimisation (Intercomp, 2018), and others.⁴²⁰⁵ In each of these adjacent markets, Sberbank sought to leverage its large customer base, access to capital, strong brand recognition, and developed technological expertise in order to create a ‘first mover’s advantage’ and harness network effects. In 2017, Herman Gref declared a new development strategy for 2018-2020, according to which by 2020 Sberbank should be transformed into a universal technological company, whose competitors would be Google, Amazon and Alibaba, not just banks.⁴²⁰⁶ The strategy aims to achieve almost total technological leadership and underlines the need to create an ecosystem for the convenience of the bank’s clients.⁴²⁰⁷

4201 * Ekaterina Perevoshchikova, Ekaterina Semenova, Daria Kotova .

4202 US SEC, Form 20-F, ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 for the fiscal year ended December 31, 2017, Section ‘Relationship with Sberbank’, <<https://yandex.gcs-web.com/node/11336/html#Toc>> accessed 11 March 2019.

4203 Ekaterina Litova and Peter Kanaev, ‘Multiple Xs: Why Did Sberbank Need a New Brand?’ RBC (Moscow, 14 December 2018) <https://www.rbc.ru/finances/14/12/2018/5c139a6a9a794752707d12e4> accessed 27 May 2019.

4204 Sberbank, ‘Results of the Implementation of the Sberbank Development Strategy for 2014–2018’ <https://2017.report-sberbank.ru/ru/strategic-report/development-strategy-results> accessed 11 July 2019.

4205 See the annexed Table on Sberbank’s Merger Activities.

4206 *ibid.*

4207 ‘The Sberbank Development Strategy 2020’ <https://www.sberbank.ru/common/img/uploaded/files/sberbankdevelopmentstrategyfor2018-2020.pdf> accessed 27 May 2019.

The peculiarity of Sberbank's ecosystem is that, unlike, for instance, Google or Facebook, it started as a traditional institution based on the pipeline business model and then embarked on the task of transforming into the digital ecosystem. It involves specific challenges and limitations related to dealing with legacy systems and business models. In addition, being the largest bank in Russia, it needs to preserve stability of the core business, while venturing into the new areas.

The following sections outline the private governance model employed by Sberbank towards its ecosystem.

1.5.1.1. Ecosystem: The Rationale of Creation and Key Elements

Sberbank's move to create a digital ecosystem has several reasons behind it. The first reason is profit generation. Sberbank declares that the goal of digitalization is to increase the market capitalisation of the company (allegedly from \$60 bln to \$200 bln.).⁴²⁰⁸ This is not surprising, as technological companies have the highest market cap compared with more traditional, product-oriented business. Therefore, transformation into the digital platform is going to increase Sberbank's market capitalisation and profitability.

Second, Sberbank has been facing competitive pressure from more innovative financial institutions which have entered the market relatively recently (like Tinkoff or Rocketbank).⁴²⁰⁹ These competitors use the digital platform model by combining financial and non-financial products to increase customer engagement and they are highly popular among millennials. Banks also feel increasing pressure from non-financial companies – the Big Tech firms (Amazon, Google, Apple, Alibaba, etc.) that strive to lock up customers in their ecosystems by providing them the whole range of services including financial products. Thus, the defensive strategy chosen by Sberbank might be the only way to preserve its leading position in the market of banking products in Russia.

During last couple of years Sberbank has been actively penetrating in the whole array of non-financial sectors including e-commerce (joint venture with Yandex.Market), health-care (Doc.Doc), real estate (DomClick), telecommunications (Sbermobile), cloud technologies (Sbercloud), mobile payment and restaurant loyalty system (Plazius), biometric identification (VisionLabs). Some of the products have been developed by Sberbank in-house, while others were acquired through M&A transactions (see annex). To date, its most ambitious project has been launching two marketplaces together with Yandex.Market – Beru and Bringly – to compete with foreign marketplaces such as Aliexpress.⁴²¹⁰ In the development of its ecosystem Sberbank seeks to leverage the data about cus-

4208 Anna Tretyak, Anna Yeremina 'Why Does Gref Want to Turn Sberbank into an IT Company?' *Vedomosti* (Moscow, 16 December 2018) <https://www.vedomosti.ru/finance/articles/2018/12/16/789410-gref> accessed 25 May 2019 accessed 25 May 2019.

4209 'How Much 'True Digital Banks' Are in Russia?' <http://futurebanking.ru/post/3757> accessed 25 May 2019.

4210 Natalia Ischenko, 'Yandex.Market Launched a Competitor to Aliexpress' *Vedomosti* (Moscow, 22 November 2018) <https://www.vedomosti.ru/business/articles/2018/11/22/787184-konkurenta-aliexpress> accessed 08 June 2019; Max Seddon, 'Sberbank and Yandex Launch 'Russian Amazon' *Forbes* (26 October 2018) <https://www.ft.com/content/f4d85572-d6b8-11e8-a854-33d6f82e62f8> accessed 08 June 2019.

tomers transactions in its possession in order to identify the most pressing needs of its clients through their daily expenditures.⁴²¹¹ To better understand the clients and make personalized offers, Sberbank seeks to extend channels of getting the data about its customers. This might be the rationale of its latest acquisition of Rambler Group active in web search and content services.⁴²¹² Combination of bank transactional data and data about customers' online behaviour might further entrench the Sberbank's position as the emerging powerful ecosystem.

Apart from developing the ecosystem for individuals, Sberbank aims to develop the comprehensive ecosystem for SMEs. This includes various companies for optimisation of business processes (Evotor and Intercomp), targeted online advertising (Segmento), and an online supermarket for SMEs which currently includes 24 non-financial services.⁴²¹³

1.5.1.2. Towards the Sberbank Technological Platform

Sberbank has often voiced an opinion that a proprietary technological platform laid the foundation of the successful ecosystem.⁴²¹⁴ By 2020 Sberbank plans to introduce the new technological platform, where all existing clients, products and services will migrate.⁴²¹⁵ The new platform will be based on the innovative cloud infrastructure and will provide API-services for all partners and key elements of ecosystem. To implement effective technological government of its ecosystem, Sberbank plans to introduce DevOps⁴²¹⁶ practices and tools increasing the speed of creation and update of services and applications. When implemented, this will create the thriving environment for developers of various applications to plug into Sberbank platforms and reach the clients.

According to Sberbank, the partners plugging into the Sberbank ecosystem will get access to the customer database amassed by Sberbank and technological capabilities of the platform (including client identification, quick data sharing, etc.).⁴²¹⁷ The platform will provide the ground for competition between internal and external products.⁴²¹⁸

4211 *ibid*; Sberbank, 'Annual Report 2017' <https://2017.report-sberbank.ru/ru/performance-overview/best-customer-experience/business-ecosystem> accessed 27 May 2019.

4212 Lyudmila Petukhova and Anton Verzhbitsky, 'Web for the Client: How Russian Banks Are Turning into Tech Companies' *Forbes* (Moscow, 03 April 2019) <https://www.forbes.ru/finansy-i-investicii/373909-pautina-dlya-klienta-kak-rossiyskie-banki-prevrashchayutsya-v> accessed 25 May 2019.

4213 'Sberbank presented an ecosystem for corporate clients' *CNews* (5 June 2018) http://www.cnews.ru/news/line/2018-06-05_sberbank_prezentoval_ekosistemu_dlya_korporativnyh accessed 27 May 2019; 'Sberbank Enters the Business Process Outsourcing Market' (27 November 2018) <https://www.banki.ru/news/lenta/?id=10763456> accessed 27 May 2019.

4214 'The Sberbank Development Strategy 2020' 21, <https://www.sberbank.ru/common/img/uploaded/files/sberbankdevelopmentstrategyfor2018-2020.pdf> accessed 27 May 2019.

4215 *ibid* 29.

4216 AWS, 'What Is DevOps?' <https://aws.amazon.com/devops/what-is-devops/> accessed 08 June 2019.

4217 Sberbank, 'Annual Report 2017' <https://2017.report-sberbank.ru/ru/performance-overview/best-customer-experience/business-ecosystem> accessed 27 May 2019.

4218 Future Banking, 'From bank to technology company. How does the new Sberbank platform work?' (11 December 2017) <http://futurebanking.ru/post/3508> accessed 27 May 2019.



Source: FutureBanking⁴²¹⁹

On the customer side, the platform will provide:⁴²²⁰

- Integration of all the processes of end-to-end interaction from and to the client;
- Providing the omni-channel client experience: a client can get any services or continue any operation regardless of the channel where it has been initiated. The client can also get customised offering based on its preferences through any channel.

Apart from this, Sberbank actively invests in the cutting-edge technologies (AI, blockchain, robotics, Internet of Things) with a view to embedding these solutions into the Sberbank's platform and securing its unassailable technological advantage.⁴²²¹

To summarise, implementation of the technological platform by Sberbank will give the latter an opportunity to manage all interactions between customers and service providers comprising its ecosystem. We have not found exact information about monetisation of the platform, but according to Herman Gref, the period of ROI for the platform is estimated as three-four years, which might indicate the high rate of its profitability.⁴²²²

1.5.2. The Particles of the Sberbank Digital Ecosystem

Sberbank and Yandex, the Russian largest technological firm, collaborate on a number

⁴²¹⁹ Future Banking, 'From bank to technology company. How does the new Sberbank platform work?' (11 December 2017) <http://futurebanking.ru/post/3508> accessed 27 May 2019.

⁴²²⁰ 'The Sberbank Development Strategy 2020', 29.

⁴²²¹ Sberbank, 'Annual Report 2017', 112.

⁴²²² See "Financial Service is Always Intermediate: Money is not for the Sake of Money" Kommersant (Moscow, 08 June 2018) <https://www.kommersant.ru/doc/3651770> accessed 27 May 2019.

of e-commerce projects. In August 2017, the two companies signed a binding letter of intent that laid down the terms for a joint venture Yandex.Market,⁴²²³ which had been previously a part of the Yandex.Group. According to the available information, Sberbank acquired Yandex.Market's shares valued at 30 billion rubles. Upon the acquisition, the overall stock capital was divided equally between Yandex and Sberbank with 10% of the shares forming an option fund for the employees.⁴²²⁴ Currently, Yandex.Market runs two online marketplaces – Beru and Bringly, as described below.

1.5.2.1. Beru.ru and Bringly.ru: Private Governance Forms

Beru.ru is a marketplace which offers a variety of consumer goods in electronics, beauty and health, sports, etc. and operates within the domestic market.⁴²²⁵ Sberbank and Yandex launched Beru in May 2018 in beta,⁴²²⁶ and in October 2018 Beru became available for public.⁴²²⁷

Bringly.ru was launched by Sberbank and Yandex in 2018. In contrast to Beru.ru, Bringly.ru is a cross-border e-commerce service that offers goods delivery from abroad. The companies' representatives said in the context of the deal that the combination of Sberbank infrastructure for payments and lending for buyers, and Yandex technologies, such as platform API, would help them develop the e-commerce ecosystem in Russia.⁴²²⁸

Because Beru.ru and Bringly.ru deploy similar business models, the analysis of the private governance regimes (technical, soft and contractual) applies to both platforms. In case of Beru.ru more information on contractual governance is available in the public domain than for Bringly.ru.

1.5.2.1.1. Contractual governance

1.5.2.1.1.1. Relationships with customers

The main document governing contractual relationships of Beru.ru and Bringly.ru (each referred to as '**platform**') with their customers is the Terms of Use that are identical for both marketplaces.⁴²²⁹ The Terms of Use are concluded between Yandex.Market, LLC

4223 'Yandex and Sberbank have signed a joint venture agreement based on Yandex.Market' https://yandex.ru/company/press_releases/2017/1213 accessed 10 May 2019.

4224 *ibid.*

4225 Beru.ru website <https://beru.ru/> accessed 10 May 2019.

4226 'Joint E-commerce Platform "Yandex" and Sberbank Has Been Named Beru' Interfax (21 May 2018) <https://www.interfax.ru/business/613634> accessed 10 May 2019.

4227 'Yandex and Sberbank launched the Beru marketplace', Vedomosti (Moscow, 24 October 2018) <https://www.vedomosti.ru/business/articles/2018/10/24/784535-yandeks-beru> accessed 10 May 2019.

4228 'Sberbank and Yandex Launched an Online Marketplace "Beru"', Vedomosti (Moscow, 21 May 2018) <<https://www.vedomosti.ru/business/articles/2018/05/21/770179-sberbank-i-yandeks>> accessed 15 May 2019.

4229 Beru's Terms of use at https://yandex.ru/legal/beru_termsofuse/ accessed 17 June 2019. Bringly's Term of use at https://yandex.com/legal/bringly_terms_of_use/ accessed 17 June 2019.

(‘**Yandex.Market**’) providing the services of the marketplace and users of the platform and contain the following provisions:

General – relationship

The Terms of use provide Yandex.Market with quite broad rights with regard to materials posted by users on the platform (e.g. sales ads, graphics, reviews of goods). The Terms emphasize that Yandex.Market can repost such reviews and graphics on the third party’s resources (section 2.3.). Yandex.Market and YANDEX LLC can use materials posted by users on other platforms and in other applications for advertising and marketing purposes, for instance, to increase user engagement with other applications and services of Yandex.Market and YANDEX LLC (sections 2.4, 2.5).

Yandex.Market has the right of censorship with respect to some materials defined in the Terms (e.g. reviews not relevant to the goods or sellers, not based on the actual use of the goods, insulting reviews, etc.) (section 2.6). Yandex has the right to delete any review or materials at any time.

The user concludes a direct sales agreement with the actual seller of goods (section 3.2). Yandex.Market offers information services and does not participate in the relationship between the user and the seller (section 3.7). However, Yandex.Market acts as the seller’s agent when processing user’s payments for orders through the platform (section 5.2).

Yandex.Market may unilaterally change the Terms of Use at any time without notification of the buyer (section 9.2.3). For examples, Yandex.Market may change a list of third parties to whom it may transfer the buyer’s personal data (section 3.8).

Yandex.Market has the right to transfer the buyer’s personal data to third parties (section 3.8). By accepting the Terms of Use, the buyer agrees that Yandex.Market can transfer his personal data to third parties, and no additional consent is required to each instance of such transfer. Thus, the buyer’s data may be transferred to:

- Sberbank (to offer and provide the buyer with Sberbank’s personalized services);
- Yandex (to improve services of the marketplace and other Yandex services);
- the Seller of goods with whom the buyer entered into an agreement with;
- the Supplier of goods (delivery to the buyer);
- the Companies that process payments.

Handling of complaints and Liability

Yandex.Market introduces the dispute resolution mechanism for resolving disputes between buyers and sellers (section 7). It also may act as an arbitrator (section 7.4) if the buyer and the seller cannot settle the dispute, but Yandex does not have any obligations with respect to the quality of goods or the seller’s failure to comply with its obligations. The arbitration clause is not exclusive.

1.5.2.1.1.2. Relationships with partners

Beru offers sellers two models of partnership: 'shop window + fulfilment' and 'shop window + delivery'.⁴²³⁰ Under 'shop window + fulfilment', the seller uploads the catalogue of goods with prices and delivers goods to Beru's warehouse. Beru provides the following paid services: placement of the seller's goods on the platform, online facilities to conclude a sales agreement, processing of buyer's payments, storage, packaging, delivery and handling of returns. Under 'shop window + delivery', which is a new model offered by Beru, Beru manages all relationships with customers, placement of goods on the platform, and delivery, while the seller provides storage, packaging and transfer of the goods to Beru's carriers. This involves the exchange of data between the platform and a seller through a private API.⁴²³¹ The new models likely means moving to the more profitable ecosystem with commoditization of services provided by partners (as all customer relations are now locked into platform).

Unlike Bringly, Beru gives public access to the contract templates that govern its relations with the sellers of goods. Those include a service agreement⁴²³² and a marketing agreement,⁴²³³ as summarised below. The platform imposes a marketing agreement on the seller in order to allow the seller to operate on the Beru platform.

- The seller must comply with the Beru Marketing Agreement to keep in force any agreements with Beru.ru (p. 2.4.1 of the Service Agreement).
- In case the seller does not comply with or terminates the Marketing Agreement, Beru terminates any agreements with the seller (p. 9.2 Service Agreement, p. 6.8 Marketing Agreement).

Obligatory discounts as a condition of participating in Beru's marketing campaign

- The seller must provide the buyer with discounts on its products participating in the loyalty program and Beru compensates the seller for the discounts provided (p. 3.2.1 and p.3.1.3 of the Marketing Agreement).

The Platform has the right to unilaterally change the terms of the agreements.

Service Agreement

- The Platform has the right to unilaterally change terms of agreement with sellers including the fees upon notification (p. 10.3, p. 2.2, Annex 2, p. 16, Annex 3).

4230 'Model 'shop window+fulfilment' <https://yandex.ru/support/marketplace/fulfillment/about.html> accessed 14 June 2019; 'Model 'shop window + delivery' <https://yandex.ru/support/marketplace/delivered-by-beru/about.html> accessed 14 June 2019.

4231 <https://yandex.ru/promo/marketpartner/beru> accessed 14 June 2019.

4232 Service agreement template slightly differs for 'shop window + fulfilment' https://yandex.ru/legal/beru_service_agreement/ accessed 15 May 2019, and for 'shop window + delivery' https://yandex.ru/legal/beru_service_agreement_2019/ accessed 15 May 2019.

4233 Beru marketing agreement https://yandex.ru/legal/beru_marketing_agreement/ accessed 15 May 2019.

- If the seller does not agree to the changes, the seller has the right to terminate an agreement with Beru.ru upon 15 days prior notification (p. 10.4).

Marketing Agreement

- The Platform has the right to unilaterally change the terms of the agreement (p. 6.3), including compensation for the mandatory discounts provided by sellers (p. 4.2) upon notification of the sellers.
- The Platform does not guarantee the display of the seller's items, even though the seller may store items at the Platform's warehouse and pay a fee for it
- According to the Service Agreement, the Platform has the right, but not the obligation, to display items of sellers (p. 1.2, Annex 1). The Platform chooses items to display according to the criteria set by the Platform – not disclosed (p. 1.3, Annex 1).
- The Platform has the right not to display the item if its price is 30% higher than the median price according to Yandex.Market statistical data (p. 1.9, Annex 1).⁴²³⁴

The platform may transfer the seller's data to third parties According to the Service Agreement, the Platform might transfer to Sberbank and Yandex the following seller's data upon the seller's prior explicit consent (non-exhaustive list, p. 8.8.2):

- data on the seller feedback on the offers of products and services of Sberbank and Sberbank affiliates;
- analytical data on the seller's turnover (Gross Merchandise Value);
- analytical data on the seller's average check;
- analytical data on the assortment of the goods;
- contacts and other details of the seller.

Purposes for the seller's data transfer to Sberbank and Yandex are the following (p. 8.8.1):

- Increasing efficiency and improve the quality of Sberbank and Yandex services;
- developing new products and services of Sberbank and Yandex;
- tracking the activity of the seller for statistical and other studies;
- creating and maintaining mathematical models (demand, propensity to purchase and / or outflow, etc.) using machine learning algorithms;
- preparing a sample of data for organizing the marketing communication of Sberbank or Yandex.

To summarize, Beru has the right to unilaterally change an agreement with sellers and buyers and decide whether to display seller's goods. The platform also significantly limits its liability towards the buyer for implementation of the sales contracts. Moreover, both Beru and Bringly have vast rights related to collection and transfer of the buyer's

⁴²³⁴ Beru Median Price Calculation Agreement regulates pricing procedure, https://yandex.ru/legal/beru_average_price_calculation/ accessed 15 May 2019.

and seller's data, with sellers subject to more favourable terms (explicit consent to each transfer). Both platforms may transfer the buyer's data to third parties, including Sberbank and Yandex, based on the generic consent that the buyer gives when accepting the platform's Term of use, thereby limiting the buyer's ability to control the use of his data.

1.5.2.1.2. Soft governance

Beru stimulates users' engagement via loyalty and bonus programs. For example, under the bonus program,⁴²³⁵ Beru provides bonuses for each purchase, and the buyer may use bonuses as discounts on the next purchases. Under the loyalty program,⁴²³⁶ Beru's partners provide bonuses for buyers. For example, Sberbank provides the buyer with Sberbank's bonuses if the buyer makes payments using a Sberbank card. Bringly also offers a similar loyalty program.⁴²³⁷

1.5.2.1.3. Technological governance

Bringly.ru and Beru.ru are based on a similar technological solution. Yandex.Market is responsible for the general functioning of the service and provides the original marketplace as well as the technological maintenance of the platform.

As for Sberbank, it provides the payments infrastructure to the platform, including crediting customers.⁴²³⁸ Thus, Sberbank uses the marketplace as another option to attract more clients to the banking services it offers.

1.5.2.2. DocDoc Telemedicine Platform

DocDoc is a Russian online service that serves as an example of telemedicine platforms. The platform offers a range of services that include searching for a healthcare professional according to the indicated problem or diagnosis, making appointments with a healthcare facility directly via a smartphone application and receiving online consultations from healthcare professionals. The service self-identifies as a marketplace for healthcare products.⁴²³⁹

DocDoc was initially launched in 2011 under the name of "Infodoctor" and followed a search tool model of a US project "ZocDoc".⁴²⁴⁰ Later in 2013, "DocDoc" was re-launched

4235 Beru bonus program, https://yandex.ru/legal/beru_bonus/ accessed 15 May 2019.

4236 Beru loyalty program, https://yandex.ru/legal/beru_loyalty_programs/ accessed 15 May 2019.

4237 Bringly loyalty program, https://yandex.com/legal/bringly_loyalty_program/ accessed 15 May 2019.

4238 Alexander Protsenko, 'FAS Allowed Sberbank and Yandex to Create a Joint Venture' Russian Gazette (4 April 2018) <https://rg.ru/2018/04/04/fas-razreshila-sberbanku-i-iandeksu-sozdat-sovmestnoe-predpriatie.html> accessed 14 June 2019.

4239 "DocDoc" official website, <https://shop.docdoc.ru/offer> accessed 20 May 2019. See also information from the user's personal profile.

4240 Irina Kruzhilina, 'How an Internet Service for Finding Doctors Brought In \$1 mln. Investments' Forbes (24 March 2013), <https://www.forbes.ru/svoi-biznes/startapy/237993-kak-internet-servis-po-poisku-vrachei-docdoc-privlek-1-mln-investitsii> accessed 20 May 2019.

under its current name by one of the developers of the original “Infodoctor” platform.⁴²⁴¹ As of August 2014, “DocDoc” occupied over 50% of the online healthcare appointments market in Moscow.⁴²⁴²

Sberbank acquired 80% of shares in the platform in 2017 and, thus, included it into its emerging ecosystem.⁴²⁴³ While the value of the deal has not been disclosed, the company’s value as of the date of its acquisition by Sberbank was approximated at around 1.5 billion rubles.⁴²⁴⁴

When officially disclosing the acquisition of DocDoc, Sberbank’s representative mentioned the importance of the deal for the creation of Sberbank’s digital ecosystem.⁴²⁴⁵ Sberbank’s probable aim was to combine various personalized services in its ecosystem and increase the client loyalty.

1.5.2.2.1. Contractual Governance

“DocDoc” LLC, acting as an independent entity, enters agreements that govern its relationships with clients and healthcare services providers.

Collection of Personal Data

The company’s policy on personal data is established in the publicly available Rules on Personal Data.⁴²⁴⁶ The company has no right to collect health data meaning information on the users’ health as well as data on “intimate life” (section 2.4). The company stores users’ personal data in the electronic database (section 3.1) and, apparently, owns the user database. The company may only share this data for the purposes set in the Consent form on personal data processing,⁴²⁴⁷ for instance, with a healthcare facility where a user requested an appointment.

1.5.2.2.1.1. Relationship with users

Relationship with users is governed by the customer agreement published on the “DocDoc” website⁴²⁴⁸ concluded between DocDoc (**Administrator**) and the user.

4241 *ibid.*

4242 “DocDoc” Online Platform Occupies the Leading Position on the Moscow Market of Online Doctor Appointments’, RBK (11 August 2014), <https://marketing.rbc.ru/articles/196/> accessed 20 May 2019.

4243 Roman Rozhkov, ‘Sberbank Got Medical Records’ Kommersant (25 May 2017), <https://www.kommersant.ru/doc/3306729>, accessed 20 May 2019.

4244 *ibid.*

4245 Stanislav Sazhin, ‘Sberbank Bought a Telemedicine Start-up “DocDoc”: What This Means For the Banking Sector’, Forbes (29 May 2017), <https://www.forbes.ru/tehnologii/345203-sberbank-kupil-telemeditsinskiy-startap-docdoc-chto-eto-znachit-dlya-bankovskogo>, accessed 20 May 2019.

4246 DocDoc Rules on Personal Data, <https://docdoc.ru/confidentiality> accessed 15 May 2019.

4247 DocDoc Consent Form on Personal Data Processing, <https://docdoc.ru/agreement> accessed May 15 2019.

4248 DocDoc Customer Agreement <https://shop.docdoc.ru/offer> accessed 15 May 2019.

Some services “are only available to users when the Administrator concluded agreements with the partners/providers on provision of these services to such users” (section 3.2.). However, section 3.5.2 states that it is the responsibility of the user to familiarize oneself with the terms of services and contracts concluded between the user and the service provider.

The Administrator only assists the users in concluding agreements with the respective service providers but does not participate in the actual provision of services (section 6.1).

Payments

The Administrator is authorized to accept payments from users and transfer these payments to the service providers (section 5.3) acting as an agent on behalf of the service provider.

The Administrator does not have any obligations under the User-Provider contracts and is not responsible for the providers’ performance of these contracts (section 5.6).

Limitation of liability

According to section 6 of the customer agreement, the Administrator does not bear responsibility for the actions of any third parties with whom the users interact while us

ing the services and the web-site in general and does not reimburse for damages stemming from disputes between the users and their counterparts. Furthermore, section 6.3 states that in any event, should the Administrator’s guilt be proven, the Administrator’s liability is strictly limited to 1000 rubles.

1.5.2.2.1.2. Relationship with service providers

License Agreement

As for relation with healthcare service providers, “DocDoc” acts as a licensor while a service provider acts as a licensee (sections 1.1.1 and 1.1.2).⁴²⁴⁹ The licensor grants the license to the licensee and the licensee pays for the license that allows to post information about the licensee on the “DocDoc” website and to receive orders from the clients using the service (section 2.1.).

The licensor does not guarantee the precise placement of the information about the licensee in the web-site catalogue as well as the presence or absence of clients’ reviews including the absence of the negative reviews (section 2.8).

The licensor retains the right to delete any information on the licensee in a number of cases (e.g. the licensee violates the License agreement or provides false information or

⁴²⁴⁹ DocDoc License Agreement, <https://docdoc.ru/oferta/DDOfertaVrach.pdf> accessed 15 May 2019.

receives too many negative reviews from clients – section 2.8).

Accountability

The licensor cannot guarantee the accuracy of the information posted on the platform (though it undertakes measures to exclude false or illegal information), while the licensee guarantees the accuracy of all materials posted and that their use does not infringe IP rights of third parties (sections 5.3-5.4).

Service Fees

“DocDoc” does not require fees for publishing information about its licensees and collects payments only when an appointment is made through the service. The payment is calculated based on the price of the client’s request and the overall number of requests and depends on the tariff plan chosen by the licensee (section 4.4.) and on the actual use of the service by the licensee in a given period of time (section 4.1).

1.5.2.2.1.2.1. Soft Governance

The main mechanism of the soft governance involves reviews from clients about the healthcare facilities and doctors that clients have found on the DocDoc. These reviews are posted on the web-pages of every clinic and doctor that uses “DocDoc” to arrange medical appointments. The importance of the review mechanism is underlined by the special provisions of the License agreement described above.

1.5.2.2.1.2.2. Technological governance

Technologically, “DocDoc” offers a set of software algorithms that facilitate the provision of healthcare services. These algorithms allow to post information on the “DocDoc” website and process requests for medical appointments directly to the partner healthcare facilities.

Consequently, by acquisition of “DocDoc”, Sberbank acquired its technological solution. However, there is no available information whether some of the services offered by “DocDoc” were created by, or in cooperation with, Sberbank and whether it will be plugged in into the Sberbank’s single technological platform.

1.5.2.3. DomClick: Private Governance Forms

In the beginning of 2017, Sberbank launched DomClik, an internally developed online platform intermediating the process of buying residential property.⁴²⁵⁰ On this platform a user can apply directly for mortgage in Sberbank, choose the property, formalise all legal documents for purchase, including sending an online application to Rosreestr

⁴²⁵⁰ Igor Chubaha, ‘Is Sberbank Monopolising the Real Estate Market?’ (15 March 2017) <https://www.bn.ru/gazeta/articles/237778/> accessed 29 May 2019.

(The State Register of Rights to the Real Estate Objects) and execute the electronic payment.⁴²⁵¹

The Sberbank's proposition was innovative as it allowed to buy the property online and, as Herman Gref claimed, to dramatically reduce the agency and legal fees.⁴²⁵²

Initially, the platform was open only to professional market players (property developers and real estate agencies). Since May 2018, individuals can also post ads on DomClick.⁴²⁵³

1.5.2.3.1. Contractual governance

All agreements with users of the platform and its partners are concluded by the "Real Estate Center of Sberbank" LLC, a full subsidiary of Sberbank, PJSC.⁴²⁵⁴ The contractual governance of the platform encompasses several legal agreements binding partners, sellers, buyers, and borrowers using the platform DomClick.ru ('**Platform**'). These include the personal data policy, customer agreement for DomClick.ru, terms of use of a personal account and terms of use of the agent system for transmitting documents via electronic communication channels.⁴²⁵⁵

The analysis of these contractual terms reveals that they grant the Platform quite broad rights and contribute to entrenchment of its power over users on both sides of the Platform (sellers and buyers of the property). These terms refer to:

1.5.2.3.1.1. Provision granting Platform the right over the content supplied by its users.

According to the customer agreement all information uploaded to the portal constitutes the database. IP rights to this database belong to the Licensor (the Platform) (p.2.10). According to the customer agreement the Licensor gives users access to the portal DomClick.ru. Upon registration of the personal account, the user becomes a Client and has access to any services delivered through the portal. The Client is granted the right to use the Licensor's intellectual property (the software and the database) and can extract information from the database only for personal non-commercial purposes and (or) for execution of transactions by the Client (p.4.1.2). The Partners (real estate agencies) provide the Platform with the information about their real estate objects based on the non-exclusive, free of charge license (p.2.14, 3.2.1.) as well as the right to use their trademark (p.3.2.2.). The right of extraction of information from the portal by the Partners to use in their commercial activity is regulated by a separate agreement between the Licensor

4251 Sberbank, 'Sberbank Real Estate Center, LLC' https://www.sberbank.ru/ru/about/company_partner/domclick?_ga=2.48101031.1074118979.1557779952-885413753.1557779952 accessed 30 May 2019.

4252 Igor Chubaha, 'Is Sberbank Monopolising the Real Estate Market?' (15 March 2017) <https://www.bn.ru/gazeta/articles/237778/> accessed 29 May 2019.

4253 Sberbank Press release, 'DomClick Launched a Service Accepting Ads from Individuals and Offered a Mortgage Discount for Buyers' (08 June 2018) https://www.sberbank.ru/ru/press_center/all/article?newsID=b563d163-a413-42abad91-27fade1a91b6&blockID=1303®ionID=77&lang=ru&type=NEWS accessed 30 May 2019.

4254 Abstract from the State Register of the Legal Entities as of 05 July 2017, https://www.sberbank.ru/common/img/uploaded/files/pdf/domclick_egrul.pdf accessed 07 June 2019.

4255 For the templates of the documents see <https://domclick.ru/terms.html> accessed 29 May 2019.

and the Partner (p. 4.2.2. – not available in the public domain). In addition, the Platform can delete the information posted by any user without notice on the number of cases (p.8.3, 9.2.10). It is explicitly prohibited to use the specialized software (scripts, robots) to scrape the information contained in the Portal (p.10.2.18).

1.5.2.3.1.2. The right of the Platform to transfer the users' personal data to third parties

The Agreement on the Use of the Personal Account (Buyer, Seller, Partner):

The platform operator can transfer personal data of the user to a third party, *inert alia*, if the transfer of personal data is necessary to provide various types of services (without the explicit user's consent, because transfer of the personal data subject to the user's consent is indicated as a separate occasion of the transfer) (p. 5.2).

The Personal Data Policy and the Form of Consent for Processing of the Personal Data⁴²⁵⁶ states that the Platform needs the user's consent for processing his personal data (including credit history and sources of income), which consent is given for the following purposes:

- posting ads for the sale of real estate;
- sending information about the products and services of the Operator;
- processing incoming requests for a mortgage;
- information exchange between the Operator and the bank / developer / investor / seller / buyer / realtor / (hereinafter – Partner), with the right to transfer information to insurance and appraisal companies with which the Partner has agreements;
- performance of obligations under the contract concluded with the Operator and / or Partner;
- analytics of the user behaviour on the website and for sending the updates.

1.5.2.3.1.3. The right to modify the terms and content of the services provided on the Platform unilaterally or block the access to them

According to the Customer agreement:

- The Licensor may at any time amend the terms of service, modify, restrict, expand the functionality of the Platform, including the terms of the User access to the Services (p.3.1.);
- The Licensor has the right to change the requirements for the content and (or) conditions for placing advertisements on the Portal by amending the Agreement (p.8.6.2);
- To prevent violation of the terms of the Agreement or causing damage to the Portal..., the Licensor has the right to restrict the User or third party's access to the Portal (p.9.2.9).

⁴²⁵⁶ DomClick Personal Data Policy, <https://domclick.ru/fs/public/docs/privacy.pdf> accessed 18 June 2019.

According to the Terms of Use (with Partner, Buyer, Seller):

The operator of the Platform has the right to:

- monitor the user's actions in the Client's Personal Account;
- restrict the user access to information systems connected to the Client's Personal Account, including by blocking the account user;
- change the terms of use of the Client's Personal Account without prior notice to the user (p.4.1).

1.5.2.3.1.4. Imposing the form of the contract

When the Partner uses the Platform in the Client's interests to apply for a mortgage in Sberbank, the Partner undertakes to conclude an agreement with his client in the form recommended by the Licensors (the Platform) (p. 10.2.19 of the Customer agreement).

1.5.2.3.1.5. Limitation of liability and limited guarantee of the Platform**Customer agreement sets forth:**

- Limited guarantee regarding the accuracy of information and delivering of the services (section 11);
- The Licensors shall not be liable for losses incurred by the User as a result of the use of the Portal (p. 14.2);
- The Licensors are not responsible for the content and presentation of information posted by the User on the Portal (14.3).

To summarise, the contractual terms offered by the Platform allow the latter to get hold of the data uploaded to Platform with limiting clients' and partners' further use of such data. This potentially creates a data advantage for the Platform in the market of the real estate services. This is exacerbated by bundling the Platform's services (search for and evaluation of the property, etc.) with the Sberbank's products (retail mortgages). To lock in the customers within the Platform, Sberbank also offers discounts for mortgages when applied via DomClick – 0.3%.⁴²⁵⁷ This generates two cash flows for Sberbank: first, commission fees from the services performed by the Platform; and second and more important, from increased sales of its financial products to the Platform users.

1.5.2.3.2. Soft Governance

To increase the clients' loyalty, DomClick has launched many initiatives aimed at building community around the Platform and rewarding the active engagement in it. For instance, in March 2019, DomClick offered realtors participating in the Platform opportunity to leave reviews of the property where they have sold an object.⁴²⁵⁸ The realtors

⁴²⁵⁷ <https://blog.domclick.ru/post/novye-pravila-polucheniya-skidki-0-3-na-stavku-po-ipoteke-dlya-kvartir-na-domklik>

⁴²⁵⁸ <https://blog.domclick.ru/post/aktivnye-rieltory-stanut-ekspertami-domklik>

that post regular reviews will be assigned the “expert” status that will further increase their credibility and engagement. As another example, in December 2018, DomClick launched the loyalty program for its partners where for every mortgage approved via DomClick the agency receives one point.⁴²⁵⁹ The number of points affects the placement of the company in the Platform’s interface, thereby increasing its brand recognition.⁴²⁶⁰ According to Sberbank, it even invites its partners to participate in the Expert council of real estate agencies in order to streamline the communications between real estate agencies and Sberbank.⁴²⁶¹

1.5.2.3.3. Technological Governance

The services of DomClick are offered through the technological platform owned by “Real Estate Center of Sberbank” LLC. This platform is integrated with Sberbank’s platform allowing the clients of DomClick to apply for and receive an approval of mortgage by Sberbank online. It is also integrated with the Rosreestr database which allows to submit documents to Rosreestr for registration of property rights⁴²⁶² and verify the property rights automatically.⁴²⁶³ In the future, DomClick potentially will become a part of the Sberbank technological platform (see “**Sberbank Technological Platform**” section).

1.5.3. Conclusion of the Case study

The Sberbank case study helps shed the light on how the governance regime of an ecosystem and, in particular, the platform at its center, affects the allocation of value capture. The Sberbank’s governance system centers on contractual governance, which limits the role of the platform to facilitating contracts between the end users and the sellers/service providers (e.g. sellers of goods on Beru.ru or real estate agencies on DomClick). In this regard, the platform seeks to limit its liability in front of its users and partners. On the other hand, Sberbank’s platforms aims at retaining decisive control over the use of the platform interface (the web site/marketplace) by ability to change the terms of display unilaterally, refuse the display of the goods/ads and to remove any content that the platform finds inappropriate. The ultimate goal of the platforms is to get hold of the customers and partner’s data and be able to share it with its affiliates to use it more efficiently in providing services and products in adjacent markets (e.g. Yandex.Market or DomClick have the right to transfer the user’s personal data to third parties without obtaining the user’s explicit consent every time). Obviously, the platform has ability to transfer the user’s data to its parent companies, Sberbank and Yandex to allow the latter to provide personalized services to the user. Thereby, the platform seeks to benefit from the virtuous circle of continuous improvement: better product attracts

4259 <https://blog.domclick.ru/post/teper-partneram-nachislyayutsya-bally-za-sdelki-po-kvartiram-s-onlain-odobreniem>

4260 *ibid.*

4261 Interview with Alexander Popov, Executive director of DomClick (31 October 2018) <https://blog.domclick.ru/post/kto-v-itoge-poluchit-vygodu-ot-domklik> accessed 30 May 2019.

4262 https://www.sberbank.ru/ru/fpartners/other_coop/ipoteka_coop/inform accessed 30 May 2019.

4263 *ibid.*

more users, which share more data with the platform, that, in turn, use this data to provide the better product and so on.⁴²⁶⁴ This allows Sberbank to capture more data and, as a result, more value from the whole ecosystem, also benefitting its own core business – financial services (e.g. DomClick does not just generate value as a real estate platform, but also channels clients to Sberbank mortgage products).

In its strategic documents, Sberbank puts emphasis on the technological governance. It aims to implement this governance through the single technological platform, where all the clients and partners will plug in. From the above analysis, we see that Sberbank seeks to get advantage of the big data amassed and of various technological capabilities to make its technological platform indispensable for the companies that want to enter certain markets and reach particular groups of users. It is still unclear how exactly Sberbank will implement the technological governance of its platform (e.g. what kind of technological standards, algorithms, etc. it will adopt) – this is subject to further monitoring and update.

1.6. Alibaba^{4265*}

1.6.1. Nature of the competitive game

While often being compared with Amazon, Alibaba and Amazon also differ in many aspects. Rather, Alibaba is likened to Amazon, eBay, PayPal, and Google all rolled into one. Founded by Jack Yun Ma in Hangzhou 1999, Alibaba has grown to be one of China's largest companies with massive influence in the world, and one of the frontrunners of the e-commerce companies.

Alibaba is reportedly to have 80% of the online retail sales in China by volume, and is also offering a suite of services from cloud computing, mobile media, entertainment to other developing initiatives.

Alibaba's long-term mission, as the company stated for itself, is to provide business with a comprehensive, all-encompassing platform that offers all the necessary infrastructure for e-commerce. According to the company's annual report, the vast majority of its revenue is generated from charging business to use Alibaba's infrastructure.

1.6.2. Alibaba's shareholding

Alibaba is a NYSE listed company since September 2014, it operates in China through a unique VIE structure (discussed below). The largest five outstanding shareholders as of May 2019 are:

⁴²⁶⁴ The virtuous circle of continuous improvement is described, for instance, in Andrew NG, 'AI Transformation Playbook' (2018) <https://landing.ai/ai-transformation-playbook/> accessed 20 January 2019.

⁴²⁶⁵ * Bowen Wang and the team of the University of Peking Internet Centre.

- Jack Yun Ma: Founder and chairman of Alibaba, holds 11.7% of the company's outstanding shares;
- Joseph Chongxin Tsai: Co-founder and vice chairman, holds 8.4% of the outstanding shares;
- Blackrock: a global investment firm, holds around 6% of shares;
- T. Rowe Price Associates: a US AMC, holds 5.3% of the outstanding shares;
- Baillie Gifford & Company: a Scottish PE house, holds 4.2% of the outstanding shares.

It is also worth noting that in the early days of Alibaba, the company is heavily invested by Softbank and Yahoo, the two was for a long time among the largest shareholders of the company.

1.6.3. Ecosystem and sibling companies

Alibaba has segmented its business into below the groups: Core Commerce, Cloud Computing, Digital Media and Entertainment, and Innovation Initiatives and Others.

- Core Commerce: which include its third party platform Taobao, its self-operating online market Tmall, its payment sibling company Alipay.
- Taobao (which in Chinese means "searching for treasure") is an online trading platform that hosts over 10 million active vendors and 400 million active buyers. Taobao is currently China's largest online trading platform. With respect to gross merchandise value (GMV), Taobao has surpasses eBay and Amazon combined in 2015.
- Cloud Computing: Alibaba Cloud, which offers elastic computing, database, storage and content delivery network, large scale computing, security, management and application, big data analytics, a machine learning platform, and other services provide for enterprises of different sizes across various industries.
- Digital Media and Entertainment: relates to the Youku Tudou and UC Browser business, also Alibaba's investment in Weibo, a social media platform.
- The Innovation Initiatives and Others segment includes businesses such as AutoNavi, DingTalk, Tmall Genie, and others

Below is a chart illustrates Alibaba's ecosystem:



1.6.4. Investment and M&As

Alibaba is also known for its active investment in the whole internet industry. Alibaba has a portfolio of investment approaching 400 companies, among which Alibaba focuses on assets that bring synergies and expand the Alibaba ecosystem.

To take a bite of Alibaba's investment, below is a list of the top 10 investment made by the company in 2017 alone, in terms of the deal value:

Target name	Transaction value	Jurisdiction	Transaction description
SUN ART	\$2.9 billion	China	Paying nearly \$3 billion for a one-third stake, Alibaba invested in Sun Art Retail, which operates several well-known supermarket brands.
INTIME	\$2.6 billion	China	Alibaba made its first serious push into brick-and-mortar retail back in early 2014 when it ploughed nearly \$700 million into department store and mall firm Intime.
TOKOPEDIA	\$1.1 billion	Indonesia	In August, it doubled down on its 2016 Lazada acquisition – which gave the Chinese firm an online shopping empire across much of Southeast Asia – by throwing a lot of money at Indonesian e-commerce app Tokopedia.
LAZADA	\$1 billion	Indonesia	Alibaba upped its stake in Lazada in April, paying an extra billion bucks to go from 51 to 83 percent.

Target name	Transaction value	Jurisdiction	Transaction description
ELE.ME	\$1 billion	China	China's growing hunger for food delivery led Alibaba to once again invest in Ele.me, which emerged as the leading meal-delivery app.
CAINIAO	\$799 million	China	Cainiao is Alibaba's logistics wing, running a network of warehouses and trucking partners.
OFO	\$700 million	China	Both Ofo and Mobike were bolstered by colossal funding rounds as they raced to expand overseas.
SOU CHE	\$335 million	China	Souche – literally “search car” in Chinese – lives up to its name as a search engine for secondhand car buyers.
YIGUO	\$300 million	China	Fresh foods app Yiguo operates in more than 200 cities across China, with those in some of the largest cities getting same-day delivery.
BIGBASKET	\$280 million	India	Over in India, Alibaba is in the late stages of a move to invest in groceries startup BigBasket.

1.6.5. Corporate organization information

1.6.5.1. VIE structure

In September 2014, Alibaba Group Holding Limited (Alibaba) successfully launched a \$25 billion initial public offering (IPO), the largest IPO ever, on New York Stock Exchange. Alibaba's landslide IPO success marked as another significant event of Chinese Internet companies' capital raise in the U.S. capital markets. However, just as most of the U.S. listed Chinese companies, Alibaba adopted a unique, but not typically well-comprehended control mechanism – the variable interest entity (“**VIE**”) structure.

The term of VIE originates from the U.S. accounting rules and is explored as a resort to circumvent restrictions on non-Chinese ownership of companies in sensitive sectors, such as telecommunication, education and the Internet.⁴²⁶⁶ The VIE structure allows flexibility in one hand for the foreign investors to subscribe shares in an offshore entity (which is typically a Cayman Islands or BVI shell company for tax and corporate governance purposes), and on the other hand for the company to circumvent foreign investment restrictions. While the shell company cannot operate in the restricted sector itself, it gives foreign investors access to revenues of the underlying company that does.

Conceptually, a VIE is an entity which is consolidated in to a listing company's financial books as the entity is “controlled through contracts, rather than ownership” by it.⁴²⁶⁷ To

⁴²⁶⁶ DAVID ROBERTS & THOMAS HALL, VIE STRUCTURES IN CHINA: WHAT YOU NEED TO KNOW, O'MELVENY & MYERS LLP RESEARCH REPORT: TOPICS IN CHINESE LAW 1, 4 (2011) (on file with the Brooklyn Journal of Corporate, Financial & Commercial Law).

⁴²⁶⁷ See Alibaba Grp. Holding Ltd., Amended and Restated Articles of Association 20 (2013) [hereinafter Alibaba Articles of

put it a different way, the listing company controls the underlying company (the operating entity) through contractual arrangements instead of concrete shareholdings. In the most commonly seen market practices, a VIE entity refers to the one incorporated in China which is in actual operation and is owned by the Chinese individuals (typically the founders). The VIE entity is a purely onshore entity which has no foreign shareholding, so it is permitted to conduct business in industries which is prohibited or restricted from foreign ownership in China.

In practice, a VIE involve a complex set of legal and financial arrangement to enable foreign investment. The offshore listing company incorporates a wholly foreign owned enterprise (“**WFOE**”) in China that generates revenues to the listing company through capturing the profits of the VIEs under a series of contracts. Among such contracts, there are typically: (i) a loan agreement capitalizing the VIEs and setting governance mechanisms; (ii) share pledge by the shareholders of the VIEs to the WFOE as a collateral security to the loan aforementioned; (iii) power of attorney by the VIEs and its owners to empower the WFOE attend and vote at VIEs’ shareholder meetings or board meetings; and (iv) a services agreement which essentially transfer the residual profits of the operating entities to the listing group in exchange of offering services such as training, administrative support and so forth.

Alibaba’s VIE structure is very much followed above the classic roadmap. American investors are not acquiring or holding shares of the operating entities, rather, they are the shareholders of the shell company. Such investors do not technically own shares in Alibaba, rather, they only have contractual rights to revenues generated by Alibaba. Alibaba’s VIE structure includes a loan, a technical service agreement, a proxy, a share pledge and an exclusive call option agreement.

While being a practical way to circumvent applicable domestic law restriction and is wildly accepted by the Internet sector, VIE itself is in no ways ideal and embedded with inherent risks. For instance, the offshore investors are exposed to risks where the company founders are somehow incentivized to renege on VIE contracts. The best example to establish the case also involves Alibaba. In 2010, Alibaba decided to spin-off its online payment business developed in house, Alipay as a response to the Chinese bank regulator’s requirement of domestic ownership. Alipay was devested as a separate legal entity, Ant Financial, which is also founded and owned by Jack Ma, the president and founder of Alibaba. Under Alibaba’s VIE agreements, the offshore investors, Yahoo for example, have no rights to block such a divestment. As such, the public investors are exposed under great corporate governance risks.

Moreover, the legality of VIE structures under the PRC law is still an untouched issue. In principle, the applicable laws prohibit any such circumvention and could declare such arrangements void and unenforceable. Considering the prevalence of the VIE structure on markets, it is unlikely the courts and administration would disassemble VIEs directly, but it remains an open question how they would assess such a mechanism. The Chinese

Association], <https://www.sec.gov/Archives/edgar/data/1577552/000119312514333674/d709111dex32.htm>.

competition authority, out of the same reason, has not reviewed a single concentration where VIEs are involved so as to avoid endorsing the validity and legality of the structure.

1.6.5.2. Alibaba Partnership

In addition to the VIE structure employed, Alibaba also adopted another special corporate governance mechanism – the Alibaba Partnership. Currently comprised of 36 senior management leaders who oversee the various aspects of the whole Alibaba ecosystem, the Alibaba Partnership (the “**Partnership**”) is at the heart of company’s governance. Alibaba’s Articles of Association explicitly grant the Partnership the exclusive right of nominating a simple majority of the company’s board directors, regardless the actual shareholdings of the partnership.⁴²⁶⁸ Such a unique corporate governance structure deviates from the general corporate principle of “one share, one vote” and confers the Partnership (which is in turn essentially controlled by the founders) the disproportionate control over the company.

The Partnership abovementioned to certain extent serves as the same function as dual-class shares by which the founders are empowered to elect the majority of the board votes while only holding a small portion of the company’s economic interests. Pyramids, cross-holdings and voting arrangements can more or less provides functions alike.

The Alibaba Partnership origins since the founding of the company in 1999, where 18 founders contributed to the initial funding of the company. In 2000, Alibaba formalized the Partnership as a Cayman Islands exempted limited partnership. In its U.S. IPO prospectus, Alibaba for the first time disclosed the function of the Partnership, which is composed by the company’s founders, managers, and managers from other companies in the Alibaba ecosystem (Ant Financial and Smart Logistics).

Besides, Alibaba has an even higher organ in its corporate governance structure, the Partnership Committee. The Partnership Committee is composed by five members and have the ultimate control over the nomination of the partners comprising the Partnership, and in turn the nomination of the directors of the Alibaba company.⁴²⁶⁹ According to the prospectus, the Partnership Committee has the right to nominate director candidates to be voted by all partners. The candidates endorsed by a simple majority of the partners are selected as the formal nominee of directors, which will then subject to a vote by shareholders. The Partnership Committee even reserves the right to nominate members for itself. The Partnership Committee serves a term of five years and may serve multiple terms. The elections are held every three years where 8 candidates proposed by the Partnership Committee and each partner votes for five nominees. Moreover, the Partnership Committee also controls the remuneration and bonus of all partners.

Alongside the supremacy conferred by the Partnership and the Partnership Committee, Alibaba further adopted very handy anti-takeover measures to protect and reinforce

4268 See Alibaba Grp. Holding Ltd., Amended and Restated Articles of Association 20 (2013) [hereinafter Alibaba Articles of Association], <https://www.sec.gov/Archives/edgar/data/1577552/000119312514333674/d709111dex32.htm>.

4269 Corporate Governance: Alibaba Partnership, ALIBABA GRP., http://www.alibabagroup.com/en/ir/governance_9

the absolute control. According to the Articles of Alibaba (Clause 1), any change of the Partnership's nomination rights would require the approval of 95% of all shareholders presenting the shareholders' meeting.

To summarise, the Partnership and Partnership Committee centralise corporate governance rights of Alibaba in a very limited number of members, which is concerned by shareholders for less of checks and balances

1.6.5.3. Taobao's private platform governance approach.

Collaborative governance is exceptionally important in China, as one would argue, the private governance provided by platforms are essentially providing substituting effects where the legal infrastructure provided by the state is not advanced or readily available. In that sense, Taobao is not only a simple matchmaker or an information exchange or a transaction facilitator, it also provides, to certain extent, legal infrastructure upon which a market is made possible.

Taobao's private rules cover several inter-related aspects, which are major problems intrinsically facing any transaction, which are, access to market, contract performance, fraud prevention and dispute resolution. Such aspects are intertwined with each other and formed an ecosystem of rules.

(i) Market access

In terms of *ex ante* market access regulation, the Chinese government has been for a long period creating a de-regulated environment for undertakings engaging in business operations. Save for a few industries where license and *ex ante* approvals are required, most online business operators and vendors are not required to obtain any license at all. Until the very recent, the newly promulgated Chinese e-commerce law started to require any business online to obtain required licenses as if it operates offline. In this regard, the practice relies heavily on the platform's self-regulation in terms of market access. On the contrary, Taobao has in place rules governing the verification of the identity, address, contact information, financial security of any vendor applicants. Vendors are required to follow Taobao rules when publishing product information and advertisements. All products and services of a merchant shall undergo a compliance review by the platform before getting listed online. By accepting the Taobao rules, the merchant on Taobao platform is abided by a series of contractual regulation imposed by Taobao. Failure to observe the Taobao rules would render the merchant for monetary punishment or even being banished from the platform.

(ii) Contract performance

Taobao has designed several mechanisms to address the information asymmetry between shoppers and vendors. Firstly, it provides an online feedback and rating system, by which the vendors are incentivized to strike for and maintain good reputation. However, Taobao's system took steps forward than Amazon and eBay in providing the rating system by establishing a massive escrow system through Alipay to assure both sides of

a transaction. The payment made by a shopper is not directly settled into the vendor's account. Rather, it is kept in the escrow account until all parties have performed their obligations. The escrow mechanism significantly enhanced Taobao's ability to enforce contracts.

(iii) Fraud prevention

Taobao has been long criticized for infringement of IPR and urged for much stringent measures taken. Further efforts have been seen made since 2012 as a response to such a public outcry. After an infringement is detected, Taobao can punish the fraudulent activities by both online and offline means. The online resorts include degrading the vendor's credit rating, de-listing the vendor from the search turnout for a certain period of time, and in extreme cases, closing the vendor's accounts.

Besides, efforts are also made in preventing identity theft and payment theft. It is worth noting that big data is creatively used in this regard as an identity theft is detected by comparing the user's behavioral data which includes usual payment method, delivery details. Obvious fraud is immediately processed by the platform by suspending the transaction involved. Where the case is suspicious but not clear enough, further verification is required to be made by the user himself. In recent years, biometric authentications such as the touch ID and the Face ID are also adopted by Taobao as a important resort of identity and payment verification.

(iv) Dispute resolution

Taobao also provides an alternative dispute resolution where disputes occur between its market participants. As one can imagine, most of the disputes dealt by Taobao are either buyer-vendor disputes over a contract breach or vendor-platform disputes where the vendor claims to be unfairly punished by the platform for breach of the platform rules.

To address the needs, Taobao designed a "jury-ish" system where 13 jurors (so called "public assessors") are randomly selected out of a pool of over three million of volunteers, whose credit rating has to meet a pre-decided threshold. The evidence submitted by the disputing parties is then reviewed and assessed by the selected assessors for an anonymous vote. Interestingly, there is no direct communication between the disputing parties and the assessors. One assessor is also unaware of the identity of the others. All communication is conducted in writing and each assessor is required to provide written comments over the dispute. The decision by the assessors is not final, as the disputing party can nevertheless request for Taobao employees to re-examine the case.

The decision made through the platform's mechanism can of course be challenged before a state court. However, the decision is still in many aspects enforceable as the platform can act upon such decisions to freeze the account of a vendor or a user, or degrade his credit rating, or (for vendor only) increase its required amount of security deposit. As we noted, freezing the payment in escrow further forces parties to engage in and comply with the platform's dispute resolution system. The state courts also usually defer to

this quasi-judicial mechanism, as it from a practical perspective provides an effective and efficient way of resolving the mounting disputes.

3.7.6.5.4. The collaborative platform governance between Taobao and the government

Having said above the benefits of Alibaba's ecosystem and Taobao's private governance structure, it goes beyond saying that such benefits could be double-sided. While enabling the platform to operate effectively, there is a risk that the platform exploits such economic power over the users to benefit the platform itself. Such a risk is increasingly noted by competition academics and law enforcers. It is as important to utilize the benefit of private governance as to put it under checks by state and judicial system.

The Chinese adopted a regulation approach. It acknowledges the efficiency of platform private governance, but also concerns about the platform's potential conflict of interest both as a rule maker and a stakeholder. In response to the platform's asymmetrical power over the operator on platforms and consumers, there are three clauses in the Chinese e-commerce Law in place addressing the platform's power as a "quasi-regulator". These clauses cannot necessarily be categorized as in competition law toolkit but still regulate the platform's power of rulemaking in many ways.

- Article 32 E-commerce platform business operators shall, on the basis of the principles of openness, fairness and justice, formulate platform service agreements and trading rules clearly stating their rights and obligations in entry into and withdrawal from the platform, quality assurance for commodities and services, consumer rights protection, personal information protection, and in other aspects.
- Article 33 E-commerce platform business operators shall continuously display their platform service agreements, trading rules, or links to such information in a conspicuous position on their homepages, and ensure that business operators and consumers can conveniently read and download the information intact.
- Article 34 In the event of revising platform service agreements and trading rules, e-commerce platform business operators shall solicit public comments in a conspicuous position on their homepages, and take reasonable measures to ensure that relevant parties can promptly and adequately express their opinions. The revised content shall be publicised at least seven days before it is implemented.
- Where on-platform businesses do not accept the revised content and request to withdraw from the platform, e-commerce platform business operators must not obstruct them and shall take on relevant responsibilities in accordance with the previous service agreements and trading rules.
- Article 35 E-commerce platform business operators must not use platform

service agreements, trading rules, technologies or other methods to impose unreasonable restrictions or requirements on on-platform businesses' transactions, trading prices, or transactions with other businesses, or collect unreasonable fees from on-platform businesses.

Considering the above, we propose below a summary table which illustrates the responsibility allocation between the Taobao platform and the government:

Stage	Regulatory content		Government	Platform
Ex ante	Market access	Vendors	General market access registration; Special approval if regulated business involved.	Review the information submitted by the user, verify the true identity, qualifications of the vendor, etc.
		consumer	N/A	N/A
	Product/service release		N/ A	Review before release, Suspend the release if obvious violations
In process	IP Infringement, fraud, false transaction		Administrative inspections	Detecting irregularities through big data, manually inspection once infringement is reported.
Ex post	Penalty over user / vendor		Administrative penalties Order the platform to elect measures such as shutting down the account.	Penalties according to the platform rules, including degrading the credit rating, closing the account, delisting the products, etc.,
	Claim of damages		Judicial procedures upon user's claim	Platform dispute resolution and security deposit system

Annex 2: Sources of sustainable competitive advantage in the digital economy

Ioannis Lianos and Andrew McLean

This Annex follows up Section 4.3.4. of the Report (Chapter 4) and provides an overview of the sources of sustainable competitive advantage in the digital economy. We consider that this mapping may provide competition authorities insightful information as to the different parameters they need to take into account in their competition assessment, in particular regarding the role of digital (technology but also transaction or hybrid) platforms. As is explained by Economides and Katsamakas, '(t)echnology platforms are the hubs of the value chains in technology industries'.⁴²⁷⁰ This position is explained by the various forms of sustainable competitive advantage from which benefit these platforms in both their horizontal and vertical competitive interactions. Some of these competitive dimensions are similar to those in conventional markets, while others are distinctive to platform businesses⁴²⁷¹. This competitive advantage derives from technology and the control of important technological bottlenecks, strategies of integration and expansion and financial sources. We explore each of these dimensions of sustainable competitive advantage as this may shed light on the appropriate policy tool in order to promote contestability.

4.3.4.1. Technological sources of competitive advantage

At the early years of technological transformation, when new players emerge, the industry is likely to be marked "by relatively high price-cost margins, at least for the more competent firms"⁴²⁷². This may lead some of the actors that have acquired superior resources and developed superior capabilities to benefit from 'abnormal profits'. These erode as the industry matures; there is new entry and industry capacity is aligned with industry demand⁴²⁷³. However, the industry is usually still marked by firm heterogeneity. Some firms continue to benefit from high rates of return and sustainable 'abnormal' profitability, 'in spite of competition'⁴²⁷⁴, while others see their profits erode when the market, following the initial hype generated by the newness of the technology, returns to equilibrium⁴²⁷⁵.

⁴²⁷⁰ N. Economides & E. Katsamakas, Two-Sided Competition of Proprietary vs. Open Source Technology Platforms and the Implications for the Software Industry, (2006) 52(7) Management Science 1057, 1057.

⁴²⁷¹ M. Cusumano, A. Gawer, D.B. Yoffie, The Business of Platforms (Harper-Collins, 2019), 173.

⁴²⁷² Michael Jacobides, Sidney Winter and Stefan Kassberger, "The Dynamics of Wealth, Profit, and Sustainable Advantage", (2012) 33 Strategic Management Journal, 1386.

⁴²⁷³ Ibid.

⁴²⁷⁴ Ibid, 1388.

⁴²⁷⁵ Ibid, 1385.

This heterogeneity as to the profitability of firms present in the industry may be due to the business acumen of firm's leaders, the creativity and persistent effort of the firms' human resources, a timely purchase of key resources that establish entry barriers to potential competitors, or even happenstance. Some authors argue that it may also be explained by investments made in the possession of 'idiosyncratic rent-earning resources' or by developing capabilities that cannot be imitated by competitors⁴²⁷⁶. These resources and capabilities are acquired through a process of customization that ties them with the specific firm. One could therefore distinguish between generic resources and capabilities, which may be easily acquired through the market, and customized or specialized resources and capabilities that can only be developed within the firm, often following a long period of investment and institutional learning⁴²⁷⁷. The acquisition of these 'idiosyncratic' resources and capabilities, often after a lengthy process of customization so that they become part of the firm's 'productive fabric', constitutes one of the possible routes for achieving a sustainable competitive advantage⁴²⁷⁸. These resources and capabilities may be leveraged by a number of strategies put in place by the firms in order to ensure they can maintain their scale advantage, such as denying efficient scale to their competitors or raising barriers to entry, for instance through the use of exclusionary practices and aggressive IP rights strategies.

Acquiring a first mover advantage is certainly a successful strategy but for it to be maintained and eventually expanded on the firm should make considerable investments on innovation. It also makes sense for the firm to focus on difficult problems that no one else has previously explored, seeking technical solutions that could potentially be implemented in the whole industry. Economic actors wishing to succeed in gaining sustainable competitive advantage aim therefore to adopt conduct in complementary spheres or markets that will be strategically linked with the core assets they control with the objectives of protecting the advantage provided by these capabilities and of limiting the possibility of their rivals to copy them. Thus, in order to protect their profits, economic actors will have to develop isolating mechanisms of their competitive advantage.

A possible mechanism to protect the competitive advantage in the long-term is technical complexity. By developing complex technical standards on which competitors' activity rely upon, by combining access to large amounts of data, or access to unique data, being able to use cryptographic techniques, unique computational power, cheap and extensive storage capabilities and powerful algorithms and AI capabilities, firms can make it more difficult for their competitors to reproduce the firm's original competitive advantage. Attracting highly specialised staff who have been specifically trained in this complex combination of assets, may also have significant effects on competition.

These practices may be combined with a strategy of patenting core technologies, developing an IP portfolio protecting investments in these technologies, and/or proceeding with a simple protection as a trade secret.

4276 Ibid, 1404.

4277 Ibid, 1386.

4278 Ibid, 1406.

The initial conditions under which the Internet developed were characterised by its distributed technological structure, which relied on an interconnected system of thousands of individual networks enabling people to connect directly with each other through desktop computers⁴²⁷⁹. In this system, people were able to create and use new peer-to-peer services without needing to seek permission from any third party⁴²⁸⁰. The Internet dream was depicted as ‘decentralised’, ‘democratic’, and profoundly inspired by the ‘hacker ethic’ of freedom⁴²⁸¹. This anarchic or libertarian, depending on whom you ask, vision of the Internet welcomed the lack of a centre and underpinned a preference for this being a space of atomistic competition where no private or public actor would be able to own or control the medium and its content.

In reality, its technological foundations favoured a distributed, and not decentralised as such, structure of control⁴²⁸². Despite the emphasis put on decentralisation, a few tens of networks providing international connectivity spanning countries and continents occupy central positions in the global internet topology; these constituting, from a technical perspective, distributed points of control⁴²⁸³. However, even if technology was not exactly decentralised, the ethos of this first-generation Internet was profoundly marked by the decentralisation narrative. Benkler, one of the leading legal commentators on Internet-related issues, notes how the basic end-to-end design principle characterising the web and the generality of the protocol made it quite difficult to identify the nature of parties to a communication; it offered “no control points through which an entity could exclude or constrain another discrete entity attempting to use it”⁴²⁸⁴.

This portrayal of the Internet, however, soon became antiquated, as the shift to proprietary, controlled devices, software and networks in the early 2000s led to the emergence of a number of intermediaries and additional points of control, in both technical and economic senses. This led to the accumulation of power by a limited set of influential players that re-shaped Internet’s architecture thereby countering the initial decentralisation dynamic. Of course, this re-shaping was not the inevitable consequence of

4279 Note, however, that ARPANET, the first network to implement the protocol suite TCP/IP, which became the technical foundation of the Internet was administered by a single organisation through centralised control.

4280 Yochai Benkler, “Degrees of Freedom, Dimensions of Power”, (2016) 145(1) *Daedalus*, 19 writes that during this first period “the Internet was not only a technical system but also an innovative organizational system; an institutional system pervaded by commons; a competitive market with low barriers to entry; and, finally, a zeitgeist, cultural habit of mind, or ideology, perhaps best captured by the saying from computer scientist and early architect of the Internet, David Clark: ‘We reject: kings, presidents and voting. We believe in: rough consensus and running code’.”

4281 Jennifer Grannick, “The End of the Internet Dream?”, (Wired.com, 17 August 2015), <<https://www.wired.com/2015/08/the-end-of-the-internet-dream/>>.

4282 A. Mathew, “The Myth of the Decentralised Internet”, (2016) 5(3) *Internet Policy Review*, noting that the Border Gateway Protocol (‘BGP’), the technology that enables the interconnection of separate networks to form the global internet relies on three elements: (i) the packet switched networks that break up communications into individual packets of data, (ii) the routing protocols: each of these packets traverses multiple independently administered networks, each of them taking different paths to their eventual destination, at which point they are reassembled, the route being determined by a number of routing protocols which are variations of the BGP, which forms the common routing protocol, and (iii) the topology of these interconnected networks, which is a complex graph ‘consisting of over 55,000 individual networks’.

4283 Ibid.

4284 Y. Benkler, “Degrees of Freedom, Dimensions of Power”, (2016) 145(1) *Daedalus*, 19, 20.

the techno-social structures of the Internet, which as mentioned were biased towards decentralisation, but was entirely due to the strategies (and, thus, the agency) of a few players that soon came to control the vast amounts of information generated by Internet use⁴²⁸⁵.

These different strategies hint to the emergence of bottlenecks or chokepoints in the digital economy. The concept of bottleneck has been used to describe 'a scarce resource that is key for controlling performance and competitive position within an industry' or as 'the critical asset or position that enables a firm to exercise control over the platform ecosystem'⁴²⁸⁶. The control of a bottleneck may confer 'bottleneck power'. The last term has been defined quite broadly as 'a situation where consumers primarily single-home and rely upon a single service provider (a "bottleneck"), which makes obtaining access to those consumers for the relevant activity by other service providers prohibitively costly'⁴²⁸⁷, or in order to refer to 'markets (that are frequently important routes to market, or gateways for other firms', thus providing these firms the ability to 'act as a gatekeeper between businesses and their prospective customers'⁴²⁸⁸. Hence, bottleneck power may not necessarily result from the control of what can be defined as a bottleneck in the sense of the narrow definition provided above, but may also rely on other sources that provide the specific firm the ability to have a gatekeeping role. We will explore other possible sources of 'bottleneck power' in a subsequent Section (taking a more dynamic perspective). In this Section we proceed with the definition of possible bottlenecks that may be controlled by one firm and could become a source of 'bottleneck power' by looking to the assets, resources and capabilities in the digital economy that may be considered as 'scarce' or 'critical' in order to exercise control over the industry or a broader platform ecosystem. One needs nevertheless to have here in mind that the static approach taken in this Section, as we focus on what can be considered, in abstract structural analysis, as a 'scarce' or 'critical' asset or resource in the digital economy, does not dismiss the need to consider agency, and in particular the business strategy of the firm(s) in the industry. Indeed, there is a fine line sometimes distinguishing a 'bottleneck' from a 'commodity', when access to the specific asset or resource stops being indispensable, or becomes shared by multiple firms, and this ceases to be a 'competitive differentiator'⁴²⁸⁹. This transformation of a bottleneck to a commodity has been a constant feature in the IT in-

4285 This process and strategies are well described in Tim Wu, *The Master Switch: The Rise and Fall of Information Empires* (First Vintage Book, 2011).

4286 B. Pon, T. Seppälä & M. Kenney, *Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world*, (2014) 38 telecommunications Policy 979, 981. See also, M. G. Jacobides, T. Knudsen, M. Augier, *Benefiting from innovation: Value creation, value appropriation and the role of industry architectures*, (2006) 35(8) Research Policy 1200; P. Ballon, N. Walravens, A. Spedalieri & C. Venezia, *The Reconfiguration of Mobile Service Provision: Towards Platform Business Models* (September 18, 2008). Available at SSRN: <https://ssrn.com/abstract=1331549>; R. Tee & A. Gawer, *Industru architecture as a determinant of successful platform strategies: a case study of the i-mode mobile Internet service*, (2009) 6(4) European management Review 217.

4287 Stigler Institute Report, 84.

4288 Furman Report, 41.

4289 B. Pon, T. Seppälä & M. Kenney, *Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world*, (2014) 38 telecommunications Policy 979, 980.

dustry and shows how bottlenecks are not just the consequence of structural positioning but predominately result from strategies.

A summary analysis of the evolution of bottlenecks in the IT industry shows that we have moved from a situation in which bottlenecks were predominately situated in the physical infrastructure, which was regulated, to bottlenecks that are situated in the access to data, through the control of virtual infrastructure, nervous and algorithms, which are still mostly unregulated. The term 'data' is broadly defined as covering a variety of data/information that could be commercially valuable. We briefly provide a typology before examining the occurrence of bottlenecks in the current system of the digital economy.

4.3.4.1.1. The data bottleneck

4.3.4.1.1.1. Typology of data

Data is important asset and resource because it enables its users to predict phenomena, simple or complex, human or natural.

Almost 4 billion people own mobile telephones. Re-manufactured mobile phones cost about U.S. \$10 in the developing world, and receiving messages usually costs nothing. Data constitutes an essential input for various online services, production processes, logistics, smart products, and artificial intelligence.⁴²⁹⁰

This typology will discuss various categories of data focusing on the general category of "big data". When people speak of big data, they are referring to evaluating different varieties of data: location data, purchasing data, telephone call patterns, email patterns, and social graphs on social networks.⁴²⁹¹ In addition to data derived from internet-enabled devices, big data includes machine data, video and voice recordings, and various other types of structured and unstructured data.⁴²⁹²

The raw input of big data is metadata.⁴²⁹³ Smartphone apps generate a tremendous amount of metadata. App developers generally take the following steps. They develop a smartphone app to collect metadata. The app sends the data to a server run by the developer, which then must store the data. Developers often seek to anonymize the metadata. An algorithm retrieves the metadata to answer a specific question, for example, which song or type of music to play.⁴²⁹⁴

Analytics reflected in the algorithm consist of discovering noteworthy patterns in data. It involves utilizing explanatory and predictive models to drive fact-based decisions.⁴²⁹⁵

⁴²⁹⁰ European Panel of Experts Report, (2019), 7.

⁴²⁹¹ Y-A de Montjoye, S.S. Wang, A. Pentland, On the Trusted Use of Large-Scale Personal Data, Bulletin of the IEEE, p. 5 (2012).

⁴²⁹² EY, Big data: Changing the way businesses compete and operate, (Apr. 2014), 2.

⁴²⁹³ Y-A de Montjoye, E. Shmueli, S.S. Wang, A.S. Pentland, openPDS: Protecting the Privacy of Metadata through SafeAnswers, 9(7) PLOS One 1 (July 2014).

⁴²⁹⁴ Ibid., 6.

⁴²⁹⁵ EY, Big data: Changing the way businesses compete and operate, (Apr. 2014), 6.

To understand the process, the following terminology helps. From the perspective of a typology emphasising the *creation of data*, data generally falls into three categories: (1) volunteered data, (2) observed data, and (3) inferred data. When individuals volunteer data, they give a name, an email address, an image or video, or a post on social media. This data is structured because an individual generated it.

Data also can be observed. A great deal of activities now leaves a digital trace: observed data involves automatically collecting behavioural data from a user's or a machine's activity. Basic types of this data include the movement that a mobile phone tracks or clicks on a web page.

Inferred data requires transforming, in a non-trivial manner, volunteered or observed data. Businesses make money from this type of information, because it permits them to predict a person's propensity to purchase or other preferences. A shopper or music fan's profile qualifies. Neither privacy nor competition law usually creates a duty to share inferred data.

Requests for information therefore focus on observed data, when rivals cannot replicate it, or volunteered data that would require prohibitive efforts to re-acquire consent.⁴²⁹⁶

In addition to the categories relating to how data is created, the *form* of data also matters. It can consist of (1) individual-level data, (2) bundled individual-level data, and (3) historical or real-time data. Entities usually request data to offer a complementary product or to train algorithms for related or unrelated markets.⁴²⁹⁷

Privacy protection can hinge on *how data can be used*. Data may relate to (1) personal information, that is (a) non-anonymous individual-level data, or (b) anonymous individual level data (often for machine learning), (c) aggregated data (sales data, national statistics), and (d) contextual data (satellite, mapping data).

Non-anonymous use of personal information (individual-level data) may qualify as the most valuable asset, in particular because of the regulatory barriers imposed on its harvesting by the development of regimes of privacy protection in some jurisdictions (e.g. the General Data Protection Regulation –GDPR in the EU). The information may permit switching, or it may increase the quality of a service enough to provide a considerable competitive advantage to the firm using this data. Complementary products often rely on this data. This information may include both historical and ongoing observed data on an individual or a reasonably identifiable individual, even indirectly identified in combination with other information.⁴²⁹⁸ This information may be as simple as a name or a number or could include other identifiers such as an IP address or a cookie identifier, or other factors⁴²⁹⁹. The GDPR provides a non-exhaustive list of identifiers, including name, identification number, location data and online identifiers⁴³⁰⁰. According to the GDPR,

4296 EU Commission Report, at 8, 24-25, 101.

4297 Ibid., p. 8.

4298 Ibid., pp. 25, 31.

4299 See Art. 4(1) GDPR.

4300 See, Recital 30 GDRP.

‘processing of personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person’s sex life or sexual orientation shall be prohibited’ subject to a limited number of exceptions, such as the data subject has given explicit consent to the processing of those personal data for one or more specified purposes, the processing is necessary to protect the vital interests of the data subject, the processing is necessary for reasons of public interest in the area of public health etc⁴³⁰¹. The processing should be lawful in these circumstances⁴³⁰².

This data should relate to the individual. According to the GDPR, the harvesting of personal data may also include information which has had identifiers removed or replaced in order to pseudonymise the data⁴³⁰³, or data that is encrypted. Article 20 of the GDPR establishing the principle of data portability for personal data does not recognize a right to continuous data access. Instead, it permits the transfer of accumulated past data.⁴³⁰⁴

If personal data is anonymised then this is not subject to the GDPR rules⁴³⁰⁵. Similarly, information concerning a ‘legal’ rather than a ‘natural’ person is not personal data and therefore also not subject to GDPR.

Information that is not personal data consists non-personal data, therefore falling outside the scope of the prohibition of Article 4 GDPR which only applies to personal data. Hence, there is a principle of free flow of this data, which derives from various sources (corporate, state etc.). Non-personal machine-generated data and sensor data may be particularly valuable as well, in particular in the context of smart manufacturing and connected systems (e.g. connected cars). Article 20 of the GDPR does not grant a mandatory right for individuals to port non-personal data⁴³⁰⁶. This data may be protected by other means, such as trade secrets, traditional intellectual property rights (e.g. copyright, patents, etc.), or through other legal instruments (e.g. tort law, law of unfair competition).

Not all data is big data. Fast data exists, and it enables an organization to determine personal preferences quickly. For instance, fast data may evaluate demand response and reduce power consumption. Dark data essentially refers to unstructured data, which organizations cannot easily access. It can provide rich information: video streams, photographs, and handwritten answers to questionnaires. Lost data, or operational data, de-

4301 Art. 9 GDPR.

4302 See Art. 6 GDPR.

4303 According to Art. 4(5) GDPR, ‘pseudonymisation means the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person’.

4304 EU Commission Report, p. 81.

4305 According to recital 26 GDPR, ‘...(t)he principles of data protection should therefore not apply to anonymous information, namely information which does not relate to an identified or identifiable natural person or to personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable. This Regulation does not therefore concern the processing of such anonymous information, including for statistical or research purposes’.

4306 EU Commission Report, pp. 8, 88.

rives from manufacturing equipment or industrial machinery. Experts say ‘lost’ because the owner cannot easily remove it from operational systems. New data involves data that a business could acquire or use, but for whatever reason, it is not harvesting it.⁴³⁰⁷

Moving beyond classifying, the rest of this typology will focus on a few meaningful uses of data. Evaluating basic information from standard carriers’ logs—phone calls and text messages sent and received—researchers have been able to predict more accurately the personality of a mobile phone user. Mobile phone datasets provide an “unobtrusive and cost-effective” alternative to measuring personality traits relative to surveys. To take an example, the time lapse between when a person receives and answers a call can indicate conscientiousness. The other categories were extraversion, agreeableness, open to experience, and emotionally stable. The study revealed information and verified hypotheses with a degree of accuracy from between 29 percent and 56 percent better than random.⁴³⁰⁸

Crunching data related to voice, communications, and mobility patterns can yield the power to screen for depression and to surmise other quality-of-life factors.⁴³⁰⁹ Comparing medical data including exercise, diet, and medicine consumption with genomic data from various population samples permits understanding how health can depend on the interaction between genes and environment.⁴³¹⁰ The data collected by mobile phones could enable interested parties to measure behaviour directly.

Government-compiled statistics can also be an additional source of data. This can be open, to the extent that governments have adopted policies favouring the disclosure of information (non-personal data or aggregated anonymised personal data) in order to promote transparency, accountability and value creation (open government data policies)⁴³¹¹.

4.3.4.1.1.2. Bottleneck resulting from the legal protection of data: the role of legal institutions

There are various protection regimes that may impede, or facilitate, access to data, and national approaches are different on this issue. In principle, data is a public good to the extent that consumption of data (information) by one individual does not reduce the amount of data (information) available for other individuals to use. If access to data may be limited, this mainly results from the legal institutions, or the absence of legal institutions, regulating its use. In the absence of a proper legal regime providing some form of protection to data, through property rights, through liability rules or through

4307 Michael Kanellos, The Five Different Types of Big Data, *Forbes* (11 Mar. 2016).

4308 Y-A de Montjoye, J. Quoidbach, F. Robic & A. Pentland, Predicting Personality Using Novel Mobile Phone-Based Metrics, pp. 48-50, 53.

4309 Global Information Technology Report 2008-2009, *supra* n.1 at p. 77.

4310 *Ibid.*, p. 79.

4311 For a discussion, see Open Government Data Report Enhancing Policy Maturity for Sustainable Impact DOI:<https://doi.org/10.1787/9789264305847-en>. In the EU, see Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, [2019] OJ L 172/56, replacing the previous Public Sector Information (PSI) Directive.

inalienability rules⁴³¹², data are subject to the possession of the entity that harvested them. This may provide this entity a *de facto* control over the data and the possibility to exclude others to use it, to the extent that they do not dispose the technology or control over the access points to the data so as to be able to harvest it by themselves.

The absence of a legal regime providing property rights on data may thus lead to situations of *de facto* control over significant amounts of data, in particular sensitive personal data over the lifestyle of an individual, or its digital and genomic identity.

However, even if the issue of creating property rights on data, providing the possibility to their property right holders to use injunctions and exclude others from their use, and to whom these property rights should be granted, is a controversial issue in most legal regimes, there are various legal institutions that have been put in place, establishing a highly fragmented property rights or property rights-like regime or organising access to this data.

For instance, while pure data is not protected by copyright in the US⁴³¹³, but can only be protected through other means⁴³¹⁴, datasets may be protected by copyright and a *sui generis* right in the EU. The protection of the intellectual creativity embodied in databases is provided through copyright (under Article 3 of the EU Database Directive). The EU Database Directive also protects investment in the collection, verification and presentation of the contents of database are protected via a *sui generis* right, which allows the database maker to prevent any extraction and/or re-utilisation of substantial parts of those contents for 15 years (Article 7 of the EU Database Directive). In *Ryanair v PR Aviation*, the CJEU held that database makers whose database falls within the definition of a database but do not fulfil the conditions of copyright or the *sui generis* right, can rely on contract to override any exceptions to the Directive⁴³¹⁵.

As explained in the previous Section, the non-anonymous use of personal information (individual-level data) may be protected by specific horizontal data protection or privacy laws, such as Article 8 and the GDPR in the EU⁴³¹⁶, or the recently adopted California Consumer Privacy Act 2018⁴³¹⁷. There also exist a number of sector specific data and privacy protection regimes, such as in the US with hundreds of provisions enacted at both federal and state levels.

Having a legal regime granting property rights on data or protecting data and therefore limiting their use, is not however the only option. It is possible that a legal regime mandates access to the data or organises the pooling of data. There has been a dissemina-

4312 For a classic discussion, see M.J. Radin, Market-Inalienability, (1987) 100 Harvard Law Review 1849;

4313 See, *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991) (which excluded the databases that do not manifest the requisite but low level threshold of originality for copyright protection).

4314 For a recent discussion, see US Copyright Office, <https://www.copyright.gov/reports/db4.pdf>

4315 Case C-30/14, *Ryanair Ltd v PR Aviation BV*, ECLI:EU:C:2015:10.

4316 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, (2016) L 119/1.

4317 See, <https://www.caprivacy.org/>.

tion of specific access regimes for certain types of data.

For instance, Directive 2003/98/EC on Re-use of Public Sector Information provides that public authorities should provide access to certain public sector information. Public sector bodies may charge fees for supplying and allowing access to the information, but they need to be reasonable, given the circumstances of public sector actors. In particular, “the total income shall not exceed the cost of collection, production, reproduction and dissemination, together with a reasonable return on investment”.⁴³¹⁸ The Directive requires, that applicable conditions and charges should be transparent (i.e. pre-established and public), including (on request) the calculation basis for fee and what factors should be taken into account in the calculation of charges for atypical cases).⁴³¹⁹ These principles are taken forward by the recently adopted Open Data Directive⁴³²⁰.

The revised Directive on Payment Services in the Internal Market⁴³²¹ of 25 November 2015 sets out that account servicing payment service providers, such as banks, must allow third parties to obtain real-time data relating to customers’ accounts on a non-discriminatory basis (including without any discrimination in terms of charges, timing and priority).⁴³²²

In 2018, the Commission published a Guidance on Sharing Private Sector Data in the European Data Economy where it provided certain principles of voluntary data sharing between businesses (B2B) and between businesses and government (B2G).⁴³²³ In particular it recommended that following key principles be respected in contractual agreements: i) transparency (persons or entities entitled to have access to data should be clearly identified, as well as the type of data and the purpose of using the data); ii) shared value creation (contracts should recognize that often several parties contribute to creating data); iii) respect for each other’s commercial interests (commercial interests and secrets of both data holders and data users should be respected); iv) ensure undistorted competition when exchanging commercially sensitive data; v) minimise data lock-in (data portability should be enabled as much as possible).

4.3.4.1.2. Bottlenecks in physical (and virtual) infrastructure: the role of ISPs, smart device providers and cloud computing

The development of the Internet and therefore that of the digital economy relies on a physical infrastructure that forms the core of the system and on which different applica-

4318 Directive 2003/98/EC on the Re-use of Public Sector Information, (2003) OJ L 345/90, Article 6.

4319 Ibid, Article 7

4320 Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, (2019) OJ L 172/56.

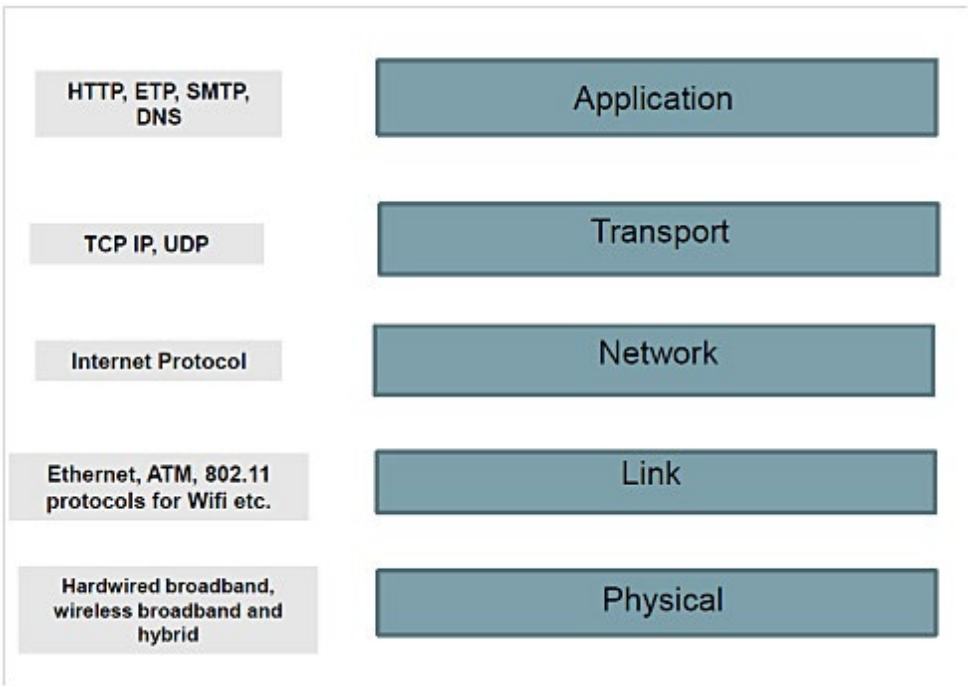
4321 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (Text with EEA relevance)

4322 Ibid., Articles 64-68.

4323 Commission, ‘Guidance on Sharing Private Sector Data in the European Data Economy’ (Communication) SWD(2018) 125 final.

tions, some with commercial use, are built upon (see Figure A2.1.).

Figure A.2.1. Internet layers⁴³²⁴



Source: authors’ compilation

The physical layer encodes and transmits bits and comprises all pieces of hardware necessary for machines to transfer and receive information from the Internet (e.g. cable modems, satellite bits). The link and network layers comprise protocols supporting the interface with the hardware connected to the Internet. The application layer protocols break down data into smaller packets and these are then transferred (via the transport layer) to the network layer to reach their destination. The transport layer ensures that data packets sent through the network layer are properly delivered. The network layer enables computers connected to the Internet to be assigned unique IP addresses thus assisting packets of data navigate across the network through a variety of computers until they reach the requested destination.

Bottlenecks in the physical infrastructure of the Internet have not emerged because of the rapid technological evolution, in particular the presence of competing hardwired broadband access though the evolution from analogue Internet access on the basis of PSTN (Public Switched Telephone Network) to digital access through the high frequencies of the Digital Subscriber Line (DSL), cable network or broadband over power lines (BPL), and the development of wireless (e.g. satellite and mobile broadband) and hybrid broadband access. This vivid technological competition at the physical infrastructure level reduced the need for regulation to deal with the strong network effects in the physical networks, with the exception of net neutrality rules⁴³²⁵.

4324 Inspired by a table in P. De Filippi & A. Wright, Blockchain and the Law (Harvard University Press, 2018).
4325 This approach, in particular in the US, was named ‘unregulation’J. Oxman, The FCC and the Unregulation of the Internet

Although the physical network of the Internet does not form a natural monopoly, it is interesting to think of the way natural monopoly in physical infrastructure in the telecommunications market was dealt during the initiation of the general purpose technology of telephony the first half of the 20th century, in particular with the establishment of mandatory interconnection following regulation in 1934-1935, as this may provide some insights on the way regulation may take place, should we consider there is a bottleneck at some level. Indeed, despite the presence of important network effects in the telecommunications industry⁴³²⁶, dominant telecom operators, such as AT&T, could not use them strategically because of mandatory interconnection rules.

AT&T originally had monopoly because of its patent. At the expiry of the patent, AT&T had covered only a small percentage of the US because large capital investment was needed and also because of its high pricing of telephone service. AT&T covered only 10% of the market, mainly businesses where the telephone was offered as an upgrade to telegraph service for ordering etc. Once the patent expired, new “independent” telephone companies entered and provided local telecommunications within towns, but they did not have a long distance technology and were rarely able to reach other towns. AT&T was the only telecommunications company with long distance technology protected by patents that had not expired. AT&T refused to interconnect its long distance network with the independents unless they were acquired by AT&T (become “part of the Bell System”). This created the situation where many businesses had two phones of different incompatible networks: one with AT&T through which they talked to their suppliers, and one with an independent company through which they talked to their customers. The refusal to interconnect strategy of AT&T served it well. In 1914, the independents had about 50% of all US access lines (lines to the home or business – last mile), while AT&T had 100% of these around 1900. By 1934, AT&T had expanded its market share to 89% mainly through acquisition of independents. After the 1934 regulation and mandatory interconnection (and the creation of the Federal Communications Commission, FCC) was put in place, AT&T’s market share remained about the same until its breakup in 1981.

Under the old 1934 regulation, the regulated company’s profit should be less than capital investment x rate of return (which was fixed by regulators, e.g. 6-10%). AT&T had a lot of price flexibility on individual product and services pricing since it was the total profit of AT&T that was capped.⁴³²⁷ Revenue caps for each line of business started after 1970.

(FCC, OPP Working Paper No. 31, July 1999), available at <https://www.fcc.gov/reports-research/working-papers/fcc-and-unregulation-internet>.

4326 These were already identified an important source of sustainable competitive advantage by Theodore Vail, the chairman of the AT&T in 1908, who noted in his annual report to the shareholders the value that AT&T derived from its network of subscribers, rather than the quality of its technology: see, Annual Report of the Directors of AT&T to the Stockholders, (1908) 20-21, available at https://beatriceco.com/bti/porticus/bell/pdf/1908ATTar_Complete.pdf?source=post_page-----.

4327 Because the formula allowed higher profits if there was higher investment, AT&T had an incentive to do more capital investment everything else being equal. Therefore, there was overinvestment.

Returning after this historical detour to the current situation with regard to the Internet, Internet Service Providers (ISPs), although most are telecom companies, do not have formally a mandatory interconnection regulatory requirement. However, since the beginning of the Internet there were no cases of refusal to Interconnect. In thinking about ISPs, we note that there are four types. First, residential customers' ISPs such as AT&T. Second business customers' ISPs (not shown in the diagram). Third, Internet backbone ISPs, commonly called Internet Backbone Providers (IBPs). Fourth, ISPs of content and applications providers such as Google and Netflix.

The long-distance part of the Internet (Internet backbone) is effectively competitive because it is based on fiber optic network connecting different cities where the various companies that own parts of the backbone interconnect usually at the same points in each city. So, the product/service is almost homogeneous. The cost of securing rights of way and digging to create the fiber optic network of the backbone is substantial. So once the companies dug they put a very substantial amount of fiber, much more than was needed at the time.

Additionally, technological advances enabled the better use of fiber optic (same fiber is now used for more frequencies and that allow the same fiber to have much bigger capacity). As a result, there is a lot of excess capacity ready to work (lit fiber) on the backbone. Additionally, there are large amounts of fiber not ready to use, but requiring just the addition of electronics at its edges (called "dark fiber"). Dark fiber also adds to potential excess capacity and suppresses the amounts of money that backbone companies can make.

The main service that Internet backbone providers (IBPs) sell to ISPs is called "transit." The service is essentially access to the whole Internet through a pipe of a certain width, and prices are roughly proportional to the width of the pipe. In every transmission from ISP1 to ISP2 connected to the same IBP, the IBP collects money from both ISPs. However, for reasons explained above, the IBP market is effectively competitive.⁴³²⁸

There is no up to date information on market shares of the backbone but the market, in Europe, the US and BRICS, is characterised by a tight oligopoly in the ISP market for residential customers [in the US this market is controlled by AT&T, Verizon, Comcast and Charter (Spectrum) which have the largest market shares]. This leads to an oligopoly market: the market for ISPs which are for residential users, which is concentrated with 4/5 players. One cannot however exclude the possibility of monopolistic ISPs, in particular in rural access markets where natural monopolies exist due to high deployment costs. There is also a market for ISPs for

4328 Pricing by Internet Backbone Providers (IBPs) to Internet Service Providers (ISPs) takes two forms, transit and peering. A "transit" contract, delivers the whole Internet through a virtual pipe of a pre-determined maximum bandwidth. "Peering" allows free exchange of information packets between two ISPs X and Y or two backbones. Peering is limited to traffic originating or terminating at X or Y and cannot be applied to traffic continuing to some further point Z. Two ISPs of comparable sizes use peering on their traffic to each other so they buy less traffic through "transit," and thereby cut their costs. Since peering is limited to traffic between two ISPs (X, Y), even peering ISP X need to buy transit for traffic that originates or terminates not at Y. So buying transit is necessary even in the presence of peering.

content providers (for Google, Netflix, Disney etc.) and ISPs for application providers (e.g. Microsoft) which is very competitive because of the countervailing buying power of content and application providers. Finally, there is a third ISP market for businesses which has more rivals.

The regulation of ISPs has implications on their capacity to harvest data, which is often perceived as the most important resource/asset in the digital economy. Because of the principle of network neutrality, which applies in the EU, Brazil and India, but not any more in the US, and not in China and Russia, although it has been under discussion in South Africa, there was no point for ISPs to collect data on the use of their services by the end users, to the extent that there were not able, because of net neutrality regulation, to discriminate between competing content and applications⁴³²⁹. Network neutrality rules can be strict, when 'each datagram should be treated in exactly in the same way to assure an Internet that is agnostic to content, speakers, and devices', or weak, when some level of differentiation or service quality and prices is possible, although this is subject to some non-discrimination tests⁴³³⁰. However, after the repeal of network neutrality rules in the US in June 2018⁴³³¹, the ISPs have a wide range of strategies available. The ISPs can detect what type of traffic the consumer uses and could also find out the location of wireless customers. This far, we have not seen any systematic attempt by the residential ISPs to use the information they can garner from these two sources.

ISP providers could collect data and they thought that because the abolition of network neutrality they could do that, but a year since the abolition of network neutrality none of the ISPs seems to have invested in data harvesting. They collect only data from data transmission which provides them information on what kind of service this is (video, email, voice etc) but it is not possible to know the content although it is possible to know from whom to whom (Ip address to what IP address) this content is transmitted, which may provide in itself hints as to the type of content this is. This is because they throttled (reduce bandwidth) for B-Torrent files. Just to make the network work better they need to twick it. If someone downloads video it is more efficient for them to send the other part of the video. The ISP market for businesses has more rivals.

Beyond the ISPs, it is possible for the providers of the devices that are used to connect with the Internet may be able to harvest data. Over 4.33 billion people were active internet users as of July 2019, encompassing 56 percent of the global population⁴³³². These

4329 For an early general discussion on network neutrality, see T. Wu, *Network Neutrality, Broadband Discrimination*, (2003) 2 *Journal of Telecommunications and High Technology Law*, 141.

4330 J.M. Bauer, *Effects of Network Neutrality Regulation and Competition Policy on the Evolution of the Internet* (July 2019), available at <http://quello.msu.edu/wp-content/uploads/2019/07/Bauer-Network-Neutrality-IAMCR-Madrid-2019-Final-Draft.pdf>.

4331 After the US Federal Communications Commission (FCC) had promulgated legally non-binding Open Internet Principles in 2004 and the Open Internet Order 2010, successfully challenged in courts (**Comcast Corp. v. FCC**, 600 F.3d 642 [DC Cir. 2010] and **Verizon v. FCC**, 740 F.3d 623 [DC Cir. 2014], the FCC passed the net neutrality rule of 2015 which treated the Internet as a telecommunications service subject to the common carrier rule, which was ultimately confirmed by the courts, network neutrality rules were repealed in June 2018.

4332 <https://www.statista.com/statistics/617136/digital-population-worldwide/>.

connect to the Internet through a number of devices (desktop PCs, laptops, tablet computers, smartphones, smart TVs, netbooks). These devices also enable the harvesting of personal or non-personal data. In addition, data may be harvested by devices (sensors) not connected to the Internet (e.g. image sensors, position sensors, temperature sensors, motion sensors, chemical sensors etc.), this data being digitised and thus commercially exploitable. The development of the Internet of Things (IoT) will increase the number of devices through which data may be harvested. IoT includes Machine to machine (M2M) communication, which used in the past embedded hardware modules and cellular or wired networks but is now relying directly or indirectly on IP-based networks to interface device data to a cloud or a middleware platform⁴³³³. The total installed base of Internet of Things (IoT) connected devices (sensors or actuators) is currently 26.66 billion devices and is projected to amount to 75.44 billion worldwide by 2025⁴³³⁴. The market for smart appliances in the context of smart homes may increase considerable the amount and type of data collected in the future⁴³³⁵. To these, one could also add self-driving cars, which may provide a gateway to a huge amount and variety of data. The number or degree of autonomy of self-driving cars is also increasing, with in addition to Tesla, a number of other companies, such as Honda, Nissan, Hyundai, PSA Citroen, BMW, ready to launch self-driving cars models in the next two years⁴³³⁶. As the number and types of devices able to harvest data increases, it becomes more difficult for a single player to control the physical infrastructure enabling the harvesting of data, thus establishing a bottleneck at the level of the physical infrastructure. The use of digital voice assistants, standalone or integrated, such as Amazon's Alexa, Apple's Siri, Microsoft's Cortana, Google Assistant, Yandex's Alice, Tencent's Xioawei, Alibaba's Aligenie, has multiplied in recent years with more than a third of the population in China, US, India, Brazil and Mexico owning such a digital assistant⁴³³⁷. The penetration rate of wearable medical technology and monitors, or implantable devices, is already 4.8% of the total global population, with more than 350 million users in 2019⁴³³⁸. The collection of data through IoT devices may enable a great degree of intrusion and the harvesting of types of data that were not previously available (e.g. heart rate monitors)⁴³³⁹.

The IoT relies on a different type of physical infrastructure: cloud computing. Cloud computing emerged in order to provide co-location services for data storage and computation. Resources (including control over data) move away from end-users, towards

4333 OECD, *The Internet of Things: Seizing the Benefits and Addressing the Challenges*, OECD Digital Economy Papers, No. 252, (OECD Publishing, 2016), 9, available at <https://www.oecd-ilibrary.org/docserver/5jlwvzz8td0n-en.pdf?expires=1564403774&id=id&accname=guest&checksum=CAFBA30C16C8F71F353EC099B5352A6D>

4334 See <https://www.statista.com/statistics/471264/iot-number-of-connected-devices-worldwide/>.

4335 See <https://www.statista.com/statistics/935864/worldwide-smart-home-services-number-of-subscription-by-sensor-type/>, projecting that in 2022, subscriptions for smart home services will amount to about 290 million globally.

4336 See <https://www.statista.com/chart/7009/self-driving-cars-are-on-their-way/>.

4337 See <https://www.statista.com/statistics/800837/worldwide-digital-voice-assistant-ownership-rate-selected-countries/>

4338 See <https://www.statista.com/outlook/319/100/wearables/worldwide#market-revenue>.

4339 See ACCC, *Digital Platforms Inquiry – Final Report* (June 2019), 513, available at <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>.

centralized systems that possess huge processing power and storage capacities⁴³⁴⁰. The shift towards the Internet of Things ('IoT') will further revolutionise the medium as it makes possible, for the first time, an 'unconscious' use of the Internet and offers a new point of control, to the extent that most of the Internet use will occur through smart devices taking action on their own without direct human intervention. Indeed, those that control these devices will control the majority of Internet *use*, not just Internet access.

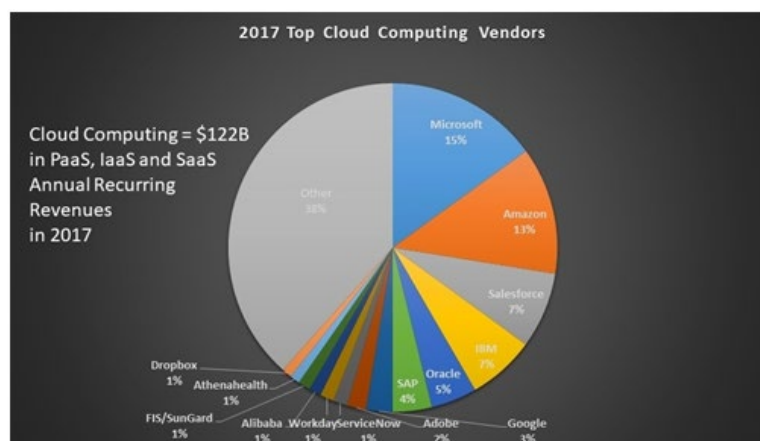
Cloud computing encompasses more than just infrastructure, for instance storage of data on shared remote servers that are hosted through the internet instead of the conventional local servers or personal computers, and is usually divided in three layers: Infrastructure as a Service (IaaS) delivers virtualised computing resources over a network connection and is of interest to network architects, Platform as a Service (PaaS) of interest to application developers, Software as a Service (SaaS) of interest to final users. The IaaS market, the fastest growing sector of the cloud computing market, was worth 38.9 billion U.S. dollars in 2019, with amazon Web Services (AWS) holding 34% of the global market, followed by Microsoft (Azure) (15%), IBM (7%), Google (7%) and Alibaba (4%)⁴³⁴¹, with Amazon, Microsoft and Google controlling 60% of the market. SaaS is the largest segment of the cloud computing market with a value of more than \$140 billion in 2019. A number of firms are active in this market, including Salesforce, LinkedIn, Concur Technologies, Workday, Inc., IBM, Oracle, Microsoft, Google, Zuora, with Microsoft the dominant player in the enterprise SaaS space with a market share of 17% worldwide in 2018, in particular after acquiring LinkedIn in 2016, followed by Salesforce with 12%, and a particularly strong position in cloud Customer Relationship management (CRM) technology, and then followed by Adobe, Oracle and SAP⁴³⁴².

The global market for cloud computing (IaaS, PaaS and SaaS) is moderately oligopolistic with a number of large players, such as Microsoft, Amazon, Salesforce, IBM, Oracle and SAP.

4340 P. de Filippi & S. McCarthy, "Cloud Computing: Centralization and Data Sovereignty", (2012) 3(2) European Journal for Law and Technology, observe that "(c)loud services, whether they're infrastructural, platform-based, or software as a service, present a fiction of decentralization to the user in the form of network effects, while the service is increasingly operated by large companies that leverage their position to limit interoperability. Because of their dominant position, large service providers can exert a degree of subjugation never conceived of by smaller and more local services, and a degree of control that would be impossible in a peer-to-peer network."

4341 See <https://www.statista.com/statistics/477277/cloud-infrastructure-services-market-share/>.

4342 See, <https://www.capacitymedia.com/articles/3822251/saas-market-up-32-to-over-20bn>.

Figure A.2.2. : Top Cloud Computing Vendors

Source: <https://www.appsruntheworld.com/first-look-at-2017-2022-paas-iaas-saas-markets-as-14-top-cloud-computing-billionaires-expand-across-enterprise-it/>

There has been a considerable increase in M&As in recent years in the cloud computing market, most involving acquisitions by Big Tech (more than 130 acquisitions between 1998 and 2018)⁴³⁴³. Although the market seems competitive, there are some firms growing exponentially more quickly than others (e.g. Microsoft, Amazon), the market exhibiting both direct and indirect network effects⁴³⁴⁴. This market may more easily tip to monopoly if important users, such as the State, conclude exclusivity agreements with one cloud provider⁴³⁴⁵.

4.3.4.1.3. Additional points of control: operating systems, application interfaces, app stores

Points of control moved from hardware to software in the early 1980s with the development of PCs and the strategies followed by IBM, the dominant player at the hardware segment of the value chain, and Microsoft, the rising star at the software segment. Cusumano, Gawer and Yoffie explain how the structure of the deal between IBM and Microsoft, for the latter to provide the operating system for IBM's PCs, was particularly

4343 AAI, Antitrust Review of Google's Acquisition of Data Analytics and Business Intelligence Startup Looker, (July 8t, 2019), available at <https://www.antitrustinstitute.org/work-product/aai-urges-the-doj-to-look-into-googles-proposed-acquisition-of-data-analytics-and-business-intelligence-startup-looker-highlights-rapid-consolidation-in-cloud-infrastructure/>.

4344 See, M. Cusumano, Technology Strategy and management – Cloud Computing and SaaS as New Computing Platforms, (April 2010) 53(4) Communications of the ACM 27, 28 (noting that 'SaaS and cloud computing platforms exhibit direct network effects to the extent they have specific application programming interfaces (APIs) or Web services that encourage application developers to tailor their applications or that make it difficult for users of these applications to switch platforms', although these network effects are not as powerful as those between Windows and applications written for PCs. He also observes that they also exhibit indirect network effects, 'to the extent that the popularity of one platform over another with developers makes the platform more attractive to other developers or users;', this also attracting final users).

4345 See, for instance, the recent controversy concerning the exclusivity cloud computing contract between the US Pentagon and Amazon or Microsoft: <https://www.ft.com/content/4ca4f7be-a4c3-11e9-a282-2df48f366f7d> (documenting the dismissal of Oracle's challenge to the projected contract on competition policy grounds).

significant for Microsoft to move the central point of control of the nascent PC industry to the operating system⁴³⁴⁶. Microsoft allowed IBM to use its MS-DOS operating system with no additional fees or royalty payments, as long as it was possible for Microsoft to license the same software to competing PC manufacturers. Cusumano, Gawer and Yoffie remark how Microsoft's approach reflects 'platform thinking' in the sense that Microsoft aimed to make the operating system 'an industry-wide platform', providing the 'foundation that many companies could use to build personal computers and compatible software applications'⁴³⁴⁷. If IBM, and its competitor Apple, were thinking about controlling a product market, PCs, 'Microsoft was thinking platforms'⁴³⁴⁸. This changes the way competition worked in the computer industry, as it became a platform business rather than a product business. The essence of the Microsoft's strategy was to develop a series of complementary innovations, adding significant value to the core product, the operating system, while ensuring that Microsoft's operating system was present in the quasi-totality of PCs, thus attracting developers. In this context, operating systems developed as the core point of control of the new PC hardware and software environment, which inevitably attracted the attention of competition authorities around the world in most of the 1990s and early 2000s⁴³⁴⁹.

4346 M. Cusumano, A. Gawer, D.B. Yoffie, *The Business of Platforms* (Harper-Collins, 2019), 3.

4347 *Ibid.*, 4.

4348 *Ibid.*, 5.

4349 In the US, in 1991, the US Federal Trade Commission (FTC) launched an investigation on Microsoft. Staff recommends that the Commission brings a case focusing on Microsoft's licensing practices with personal computer manufacturers but FTC ends investigation in Feb 93 with a deadlock. In 1994, the US DOJ brought a complaint alleging that Microsoft used exclusionary and anticompetitive contracts with personal computer manufacturers to maintain an unlawful monopoly of personal computer operating systems. In 1995, USDOJ and Microsoft concluded a consent decree by which Microsoft agreed to abide by certain restrictions on its licensing arrangements. In 1997, US Judge Thomas Penfield Jackson issued a preliminary injunction barring the bundling of IE with Windows. In May 1998, the US government (USDOJ & FTC) brought an antitrust case against Microsoft alleging that the company had monopolized the markets for personal computer operating systems and browsers. They were quickly joined by the Attorneys General of 20 States and the District of Columbia. In May 1998, the US Court of Appeals for the DC Circuit reversed Judge Jackson's order ruling that the 1995 consent decree did not apply to Windows 98, which was shipped with an integrated IE as part of the operating system and an IE icon on the PC desktop. In April 2000, Judge Jackson issued his "conclusions of law" finding for the plaintiffs finding Microsoft liable for monopolization and anti-competitive tying of IE with Windows. In June 2000, Judge Jackson issued his remedies' decision splitting Microsoft in two separate companies, one active in operating systems for PCs, TV set-top boxes, handheld computers and other devices and a separate firm for other software and Web products--such as Outlook, Internet Explorer, BackOffice and the Microsoft Network (MSN). In June 2001, the US Court of Appeal Judgment overturned Judge Jackson's rulings against Microsoft, taking a more limited scope of antitrust liability approach, although it did not overturn the findings of fact, and remanded the case for consideration. In 2001 a consent decree signed between the US DOJ and Microsoft settling the dispute (USDOJ settlement). Nine States and the District of Columbia refused to settle. In November 2002, Judge Kollar-Kotelly issued a judgment accepting most of the proposed USDOJ settlement. In June 2004, the US DC Circuit approved the settlement. In Europe, in 2004, the European Commission adopted a decision declaring that Microsoft had violated Article 102 TFEU by committing two abuses of its dominant position on the market for PC operating systems (EU Microsoft I). Microsoft was held to have abused its dominant position by refusing to supply competitors with certain interoperability information and to allow them to use it for the purpose of developing and distributing competing products on the market for work group server operating systems. It also found that Microsoft had infringed Article 102 TFEU by making supply of its client PC operating system Windows conditional on the simultaneous ac-

The *Microsoft* cases put network economics to prominence in competition law, an important part of the debate in this case revolving around network effects. A market with network externalities is one where the value of being in the network is increased as others join it. Microsoft licenses more than 90% of the operating systems for personal computers (PCs). Consequently, there is a big incentive for consumers to use the Microsoft operating system, so that they can communicate with more people. Moreover, firms writing application programs, such as media players, to be used with an operating system will target the most popular system so as to increase their potential client base. It is costly in time and money to design an application to be compatible with additional operating systems. Consequently more applications are written to be compatible with Microsoft Windows and, in turn, this increases the inducement for consumers to take a license to use Windows. Once an undertaking has achieved a very large share of a network market, it becomes very difficult for competitors to challenge it, even if their technology is superior, as fewer applications are designed to be used with the new operating system and there are fewer clients with whom to communicate. The market 'tips' in favour of the incumbent. If only part of an industry is a natural monopoly, it may be possible to keep the rest of the market competitive. A competition authority has a strong incentive to act to prevent the monopolist of one part of the system extending its market power to other parts before those markets tip, too. If all the adjacent markets are supplied mainly by the same firm, it will be very difficult for a newcomer to challenge the original monopoly. A possible way out of the dilemma is the creation of middleware: a platform or software interface designed to be compatible with several operating systems, which can support many applications software. In that way, the applications compatible with the middleware can be 'ported' or used with any operating

quisition of its Windows Media Player (WMP). See, *Microsoft/W2000* (Case COMP/C-3/37.792) Commission Decision of 24 March 2004. The European Court of First Instance (GC), now the general Court of the EU, affirmed the decision of the Commission in 2007: see, *Case T-201/04 Microsoft Corp. v. Commission*[2007] ECR II-3601. Following complaints by Opera, the Norwegian Internet browser maker, in December 2007 the Commission initiated investigations and sent a Statement of Objection (SO) in January 2009 alleging a violation by Microsoft of Article 102 TFEU for tying its web browser Internet Explorer to its dominant client PC operating system Windows (EU *Microsoft II*). The Commission accepted the Redmond firm's commitments to offer a choice screen remedy for the allegedly anticompetitive practice of bundling the Internet browser software with the operating system software: see, *Microsoft (tying)* (Case COMP/C-3/39.530) Commission decision of 16 December 2009. Related to these cases a number of other investigations were opened against Microsoft either for not complying with the infringement decision of the Commission, or the commitments proposed by Microsoft and adopted by the Commission, or for ensuring the interoperability between the operating system Windows and other software products. Similar cases were brought in other jurisdictions, most prominently the US, but also South Korea. To these public enforcement led litigation, one should of course add the significant private antitrust litigation introduced brought against Microsoft by competitors, non-competitors and final consumers (class actions) mainly in the United States leading to private settlements amounting in 2014 to more than \$5 billion: see, Table 7.1. in Al Gavil & H First, *The Microsoft Antitrust Cases* (MIT Press, 2014), 260. See also, N Economides & I Lianos, 'A Critical Appraisal of Remedies in the E.U. Microsoft cases' (2010) 2 *Columbia Business Law Review* 346, 373–376. For a detailed book-length analysis of the Microsoft cases in the EU, US and globally see, WH Page & JE Lopatka, *The Microsoft Case – Antitrust, High Technology and Consumer Welfare* (University of Chicago press, 2007); L Rubini, *Microsoft on Trial – Legal and Economic Analysis of a Transatlantic Antitrust Case* (Edward Elgar, 2010); Al Gavil & H First, *The Microsoft Antitrust Cases* (MIT Press, 2014). Of course the bibliography on the Microsoft cases is vast

system. Besides being an operating system Windows was such a platform, but there were also other platforms that relied on different operating systems, such as Linux, Mac OS, or web servers/web browsers, on which software applications could also be written without the need to pass by Windows. The core of the allegations against Microsoft was that the Redmond-based company sought through exclusionary practices and predatory pricing to create a high barrier to entry in the platform market as it perceived a threat to its Windows monopoly from other middleware/platforms, in particular web server/web browser platforms, to the extent that the use of the Internet developed. In the US case, it was alleged that Microsoft had made it difficult for Netscape and Java, which might have become middleware, to expand sufficiently. Different views were expressed by economic experts on the possible effects of these practices on consumers and innovation.⁴³⁵⁰ Similar strong platform dynamics did not only develop in the context of the PC industry, but also in other ICT industries, such as the game console industry during the same period⁴³⁵¹.

The rise of the Internet led to the establishment of new points of control, such as search engines. Competition authorities have been quite active recently in the search engine segment, not only for the PC value chain but also for the smartphone value chain, to the extent that most Internet access now occurs through smartphones. In 2011, the US Federal Trade Commission considered opening a case against Google in particular for allegations that Google had manipulated its search algorithms to harm vertical websites and unfairly promote its own competing vertical properties (search bias). However, and it seems contrary to the recommendations of the FTC staff that have investigated the case for two years⁴³⁵², the FTC leadership reached an agreement with Google a January 2013 settling the case after concluding that

‘[u]ndoubtedly, Google took aggressive actions to gain advantage over rival search providers. However, the FTC’s mission is to protect competition, and not individual competitors. The evidence did not demonstrate that Google’s actions in this area stifled competition in violation of U.S. law’⁴³⁵³

Regarding the specific allegations that Google had biased its search results to hurt competition by vertical search competing with its own websites (comparison websites, maps etc.), the FTC found that the evidence collected did not justify legal action. However, the FTC required some changes with regard to some of Google’s business practices, although noting relating to the Google’s search engine, Google accepting not to seek injunctions to block rivals from using patents essential to key technologies and to remove

4350 For an interesting early analysis of the different economic views put forward by the experts hired by the parties in the US litigation, see D Evans, F M Fisher, D L Rubinfeld & R L Schmalensee, ‘Did Microsoft Harm Consumers? Two Opposing Views’ (1st, AEI-Brookings Joint Center for Regulatory Studies, Washington 2000). See also, R Gilbert & M Katz, ‘An Economist’s Guide to U.S. v. Microsoft’ [2001] 15(2) *Journal of Economic Perspectives* 25.

4351 See, M.T. Clements & H. Osashi, Indirect network effects and the product cycle: Video games in the US, 1994-2002, (2005) 53(4) *Journal of Industrial Economics* 515.

4352 See, Wall Street Journal, Inside the U.S. Antitrust Probe of Google (March 19th, 2015), available at www.wsj.com/articles/inside-the-u-s-antitrust-probe-of-google-1426793274.

4353 See, FTC, www.ftc.gov/news-events/press-releases/2013/01/google-agrees-change-its-business-practices-resolve-ftc.

restrictions hampering advertisers' management of their ad campaigns across competing ad platforms.

In subsequent cases, the European Commission found that the unfavourable treatment by Google of competing vertical search service providers in Google's unpaid and sponsored search results coupled with the alleged preferential placement of Google's own services and the demotion of **rival comparison shopping services in its search results** constituted an infringement of Article 102 and an abuse of Google's dominant position⁴³⁵⁴. Google used universal search as a bottleneck to expand its dominant position in vertical search. Similarly, the Russian FAS⁴³⁵⁵ and the European Commission⁴³⁵⁶ condemned the tying strategies employed by Google that also involved the tying of its search engine with other applications.

The development of a new devices for consumers to access the Internet, as they moved from using PCs to predominately having access to the Internet using mobile telephony, led to the development of new points of control in the digital economy⁴³⁵⁷. The widespread use of smartphones or the development of tablet computers have led to the transition from browsers to apps.⁴³⁵⁸

Competition does not take place on a specific product but at the level of a complex ecosystem which includes the core digital platform and a number of complementors: app developers, network operators and device manufacturers⁴³⁵⁹. There is no more one product but an ecosystem of various complementary products, such as a mobile device, an operating system, an online marketplace for apps and content, apps, services and network etc. This emphasizes interconnectivity along all the elements of the ecosystem and 'offers many potential bottleneck locations': indeed, as some authors put forward, '(d)etermining the optima control point is shaped by the firm's core competencies, and therefore will vary across firms'⁴³⁶⁰. Firms make a strategic use of their application programming interfaces (APIs) which enable external apps to connect with the operating

4354 Google Search (Shopping) (Case AT.39740) European Commission Decision (26 June 2017) 4444 final.

4355 Russian FAS, Yandex vs Google, FAS Russia decision and determination of 18 September 2015 № 1-14-21/00-11-15, available at <http://en.fas.gov.ru/documents/documentdetails.html?id=14677>.

4356 European Commission, 'Antitrust: Commission fines Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine', Press Release No IP/ 18/ 4851 (18 July 2018), available at http://europa.eu/rapid/press-release_IP-18-4581_en.htm

4357 . See, Commission Staff Working Document, Online Platforms Accompanying the document Communication on Online Platforms and the Digital Single Market, SWD/2016/0172 final, 10, noting that 'the larger proportion of the EU population now accesses the Internet via mobile phones than via laptops or other devices'. This is particularly also the case in developing countries where mobile telephony constitutes the predominant mode of access to the Internet: see Pew Research Centre, Mobile Connectivity in Emerging Economies (March 2019), available at file://ad.ucl.ac.uk/homea/uctloia/Documents/PI_2019.03.07_Mobile-Connectivity_FINAL.pdf.

4358 Commission Staff Working Document, Online Platforms Accompanying the document Communication on Online Platforms and the Digital Single Market, SWD/2016/0172 final, 10.

4359 B. Pon, T. Seppälä, M. Kenney, Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world, (2014) 38 Telecommunications Policy 979, 980.

4360 Ibid.; Michael Jacobides, Thorbjørn Knudsen and Mie Augier, "Benefiting from Innovation: Value Creation, Value Appropriation and the Role of Industry Architectures", (2006) 35 Research Policy, 1201.

system, hardware or web-based system, and ensure interconnectivity and interoperability.

Of particular interest in the development of new bottlenecks is the move of Google to launch its operating system Android for smartphones, built on top of a Linux kernel, and its licensing without royalties under open-source terms in 2008. This enabled a wide range of handset makers to enter the smartphone market without having to develop their own operating system. The fact that Google provided the basic Android source code without certification restrictions for anyone to download and modify, along with the founding of the Open Handset Alliance, commoditized the operating system and transformed Android to a platform on which other firms could build their own proprietary platforms. Indeed, the Android Open Source Project (AOSP) was later customized by companies with smartphone devices, or game consoles, which were able to launch Android forks (e.g. Amazon's Fire OS, Nokia X Software Platform and a significant amount of forks in China). In addition, Google licensed for free its Google Mobile Services software, along with Android trademarks, only to hardware manufacturers for devices that meet Google's compatibility standards specified in the Android Compatibility Program. The Program defines technical details of the Android platform and provides tools for OEMs to ensure developer applications run on a variety of devices⁴³⁶¹. A number of major OEMs, such as Acer, Dell, Fujitsu, HTC, Huawei, Lenovo, Samsung, ZTE etc., have enrolled in this programme, which enables the use of the Google's APIs offering access to Google services, such as Gmail, Google Maps, and the Google Play marketplace. In contrast to Apple or Microsoft, Google did not try to monetize the OS directly, but employed a different business model relying on selling adverts.

Despite the Android Compatibility Program, the diverse Android ecosystem, in contrast to a fully proprietary integrated operating system, may face some fragmentation issues, in particular if it is necessary to update regularly the different versions of the operating system, that could affect the experience of users. Instead of acting on the operating system, on which because of its open-source status Google had relinquished control, it chose instead to develop a proprietary system application called Google Play Services transferring as much functionality from the operating system to Google Play Services (GPS). GPS is deeply integrated into the core OS functionality, as Google transferred APIs from the OS to GPS, so that it can update automatically, without any action by the user, OEMs or the network operator. This ensures that Google updates its APIs by pushing a new version of GPS to the Android certified compatible devices. This has profound implications as to the emergence of a new point of control, as the 'interface, or API, has taken primacy over the core functionality'⁴³⁶². This led a number of authors to conclude that 'control of the APIs may be more important than control of the operating system itself'⁴³⁶³. Google's strategy 'de-valued the OS as a potential bottleneck' and 'strategically

4361 See, <https://source.android.com/compatibility/overview>.

4362 B. Pon, T. Seppälä, M. Kenney, Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world, (2014) 38 Telecommunications Policy 979, 982.

4363 B. Pon, T. Seppälä, M. Kenney, Android and the demise of operating system-based power: Firm strategy and platform control in the post-PC world, (2014) 38 Telecommunications Policy 979, 987.

used the Android APIs in order to promote the use of the GPS, thus by the same affecting the functionality of its competing Android-based forks.

App store centres become an important new point of control, and thus a possible bottleneck, as Internet access through smartphones enables ‘the majority of Internet-mediated practice’ to be undertaken ‘with devices that are either narrowly customizable appliances or controlled on the app store model’⁴³⁶⁴. The recent complaints of Spotify against Apple’s app-store led Apple to revise the principles of its store and to adopt ‘App Store Review Guidelines’⁴³⁶⁵. Apple collects a commission from developers when a digital good or service is delivered through an app. This is set at 30 percent of the app subscription fees for using Apple’s payment system the first year a customer is signed up for and 15 percent for each year thereafter. Following a complaint from Spotify, a Swedish media-services provider, which alleged that this commission applies to Spotify and other music subscription services that may compete with Apple’s music platform iTunes, but not to other apps it has been reported that the European Commission is envisaging to launch a formal investigation procedure⁴³⁶⁶. Similarly, in a 5 to 4 judgment the US Supreme Court had agreed with the Ninth Circuit Court of Appeals’ decision in *Apple v. Pepper*, holding that four iPhone owners and Apple app buyers could sue the company for allegedly driving up prices by setting the retail price of the apps, and charging a 30% commission on every app sale, the company having unlawfully monopolised the aftermarket for iPhone apps, finding that the iPhone owners were direct purchasers because they purchased apps directly from Apple.⁴³⁶⁷

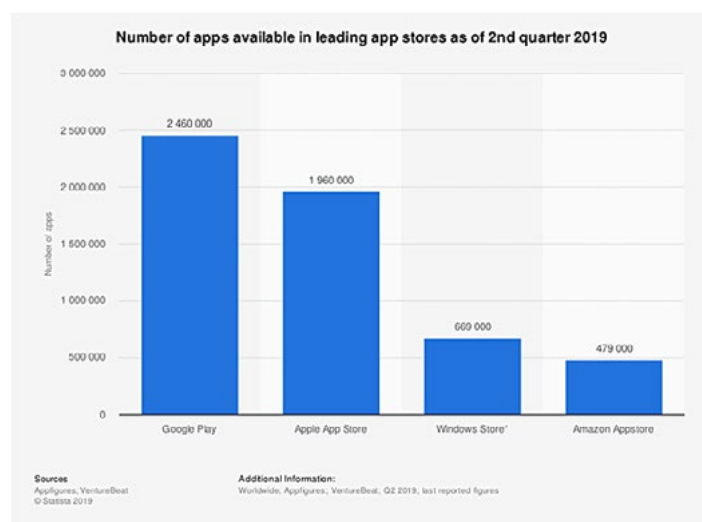
These developments show that the platform bottleneck may move to higher layers and would not necessarily involve, for instance, strategies of tying or bundling of certain services with operating systems but the tying of services to each other or between the services and new points of control, such as the app store or the cloud. Indeed, leading app stores may constitute significant barriers to new entry. During the second quarter of 2019, Apple’s App Store remained the second-largest app store with almost 1.96 million available apps (see Figure A.2.3.).

4364 Y. Benkler, Degrees of Freedom, Dimensions of Power, (2016) 145(1) Daedalus, 19, 21.

4365 See <https://developer.apple.com/app-store/review/guidelines/>.

4366 See, <https://www.ft.com/content/1cc16026-6da7-11e9-80c7-60ee53e6681d>.

4367 US Supreme Court, *Apple Inc v. Pepper*, 587 U. S. ____ (2019).

Figure A.2.3.: Number of apps available in leading app stores as of 2nd quarter 2019

Source: <https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/>

Applications generate revenue in a number of different ways, such as [charging](#) users a small amount of money for the use of an app (an average of 1.02 U.S. dollars per app in the Apple Store), charging for access to premium features of an otherwise free app or simply selling ad space⁴³⁶⁸.

4.3.4.1.4. Algorithms and AI as a bottleneck

Data may constitute an essential bottleneck but to the extent that it is a public good and therefore not subject to rivalrous consumption, their exclusionary potential depends on more specific characteristics of the data itself (for instance, some data are more difficult to harvest than others in view of data protection laws or other protective regimes) and the available technologies to harvest them (which may be covered by IP rights). However, the exploitation of this data through the development of sophisticated algorithms may also constitute an important bottleneck. This is in particular the case in view of the possibility that algorithms may be protected by IP rights, thus providing the IP holders the right to exclude others from their use. The highly evolving field of technologies of Artificial Intelligence (AI) may constitute a bottleneck in the future, in view of the expansion of AI techniques and their use in various application fields. Introduced by British scientist Alan Turing as a concept in a 1950 paper, and coined as a term by the American computer scientist John McCarthy during the Dartmouth Conference in 1956, AI techniques include machine learning, probabilistic reasoning, fuzzy logic, logic programming and ontology engineering, allowing the computation of tasks typically performed by humans⁴³⁶⁹. These are used for a number of functional applications, such as robotics, natural language processing, speech recognition, predictive analytics, planning and

4368 See, <https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/>.

4369 WIPO, Artificial Intelligence – Technology Trends 2019 (WIPO, 2019), 24.

scheduling, computer vision, knowledge representation and reasoning, among others, while deep learning constitutes the fastest growing AI technique, as inferred from an increase in AI patent applications⁴³⁷⁰. AI has an expanding scope of application in various fields of economic and social life, from business to government and the arts⁴³⁷¹.

Algorithms (or smart data) will transform the production of goods and services in all industries, the 'AI wave' catching up an increasing number of economic sectors, in particular transportation, telecommunications, and life and medical sciences. The most popular AI functional applications include computer vision, natural language processing and speech processing⁴³⁷². It is projected that the global artificial intelligence software market will experience massive growth, with revenues increasing from around \$9.5 billion in 2018 to an expected \$118.6 billion by 2025⁴³⁷³.

It is noteworthy that the economic and business context of AI is characterised by the patent activity of a small number global corporations, as well as of a few university or public research organizations, as well as by an increasing amount of M&A transactions, in particular acquisitions of AI start-ups and more mature firms by Big Tech. As a recent WIPO report explains, 'companies represent 26 of the top 30 patent applicants', most of them being Big Tech conglomerates, with just four of the top 30 being universities or public research organizations. From the corporations, IBM holds the largest portfolio of AI patents (with 8290 applications), followed by Microsoft (with 5930 applications), Toshiba and Samsung⁴³⁷⁴. Key players in the deep-learning area include the Chinese corporation Baidu, followed by Alphabet, Siemens, Xioami, Microsoft, Samsung, IBM and NEC⁴³⁷⁵. From the top 20 universities and public research organizations active in AI globally, 17 are based in China, with the largest portfolio belonging to the Chinese Academy of Sciences (CAS)⁴³⁷⁶. However, a more careful analysis of patent applications shows that IBM and Microsoft rank first and second in most AI techniques, with also some significant presence from some leading entities in China (e.g. the State Grid Corporation of China (SGCC), Baidu, as well as the CAS) (See Figure A.2.4.)⁴³⁷⁷. India and Russia have enjoyed a high rate of annual growth for first filings in recent years⁴³⁷⁸.

4370 Ibid, 26.

4371 For an overview see, Stanford University, One Hundred Year Study (AI100)– Artificial Intelligence and Life in 2030 (Stanford University, 2016), available at <https://ai100.stanford.edu/>.

4372 WIPO, Artificial Intelligence – Technology Trends 2019 (WIPO, 2019), 31.

4373 See, <https://www.statista.com/statistics/607716/worldwide-artificial-intelligence-market-revenues/>.

4374 WIPO, Artificial Intelligence – Technology Trends 2019 (WIPO, 2019), 58.

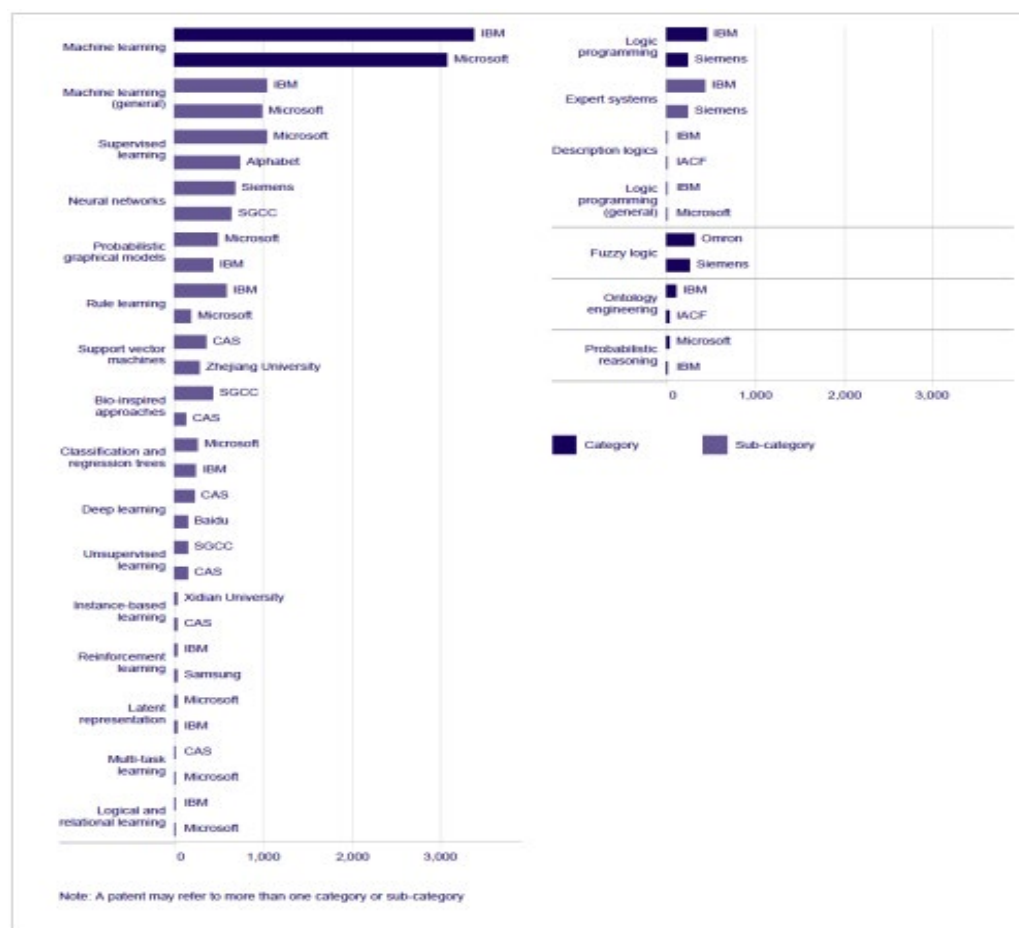
4375 Ibid, 59.

4376 Ibid.

4377 Ibid., 65.

4378 Ibid., 93.

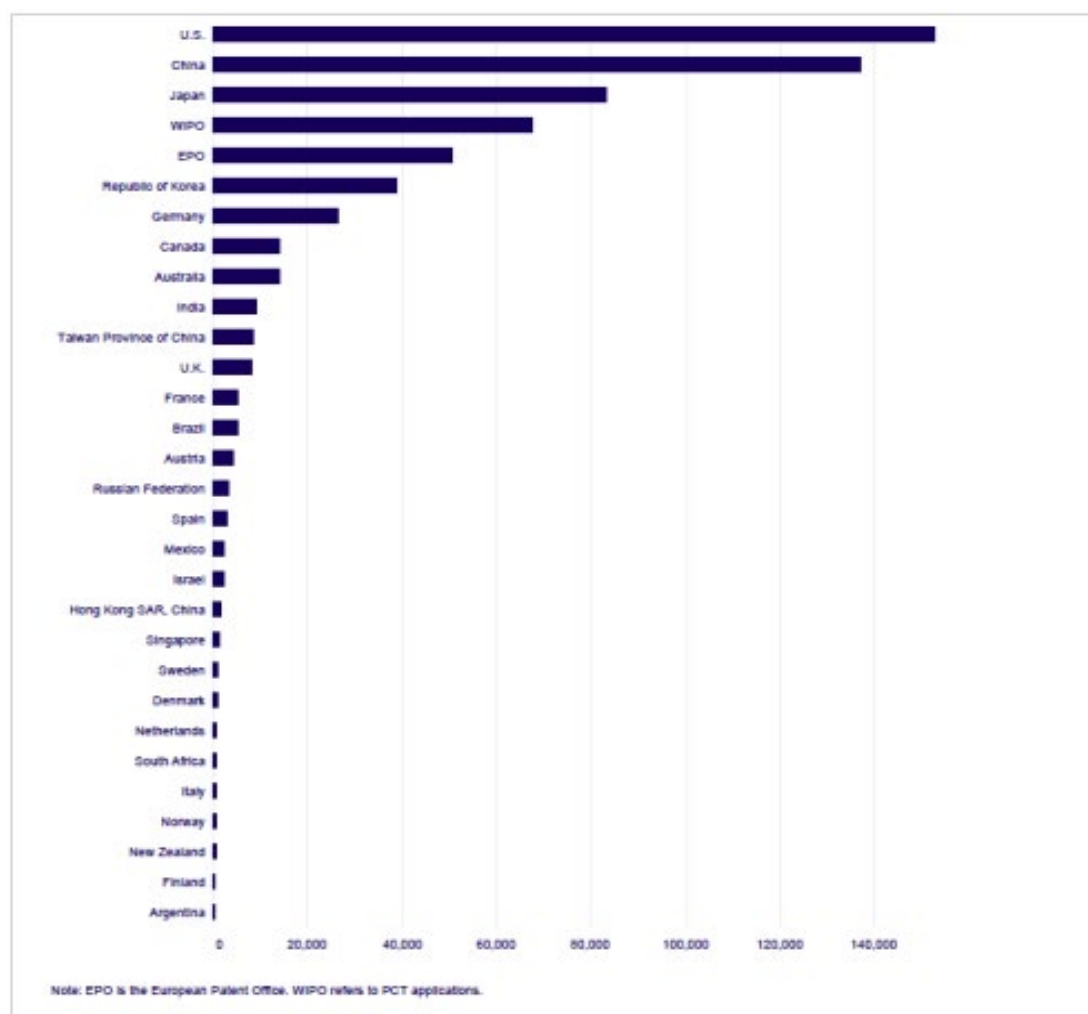
Figure A.2.4. Top two patent applicants for each AI technique category and sub category by number of patent families



Source: WIPO, *Artificial Intelligence – Technology Trends 2019* (WIPO, 2019), 65

AI Patent applications have increased exponentially the last few years, the greatest number being filed in the US and China, although India is also among the top 10 jurisdictions (see Figure A.2.5.). Note also the position of Brazil (no 14), Russia (no 16) and South Africa (no 25). However, although the US filings are either first or second filings, attracting applications from other jurisdictions (in view of the importance of the US market), the majority of filings in China are made by Chinese patentees, which may indicate that Chinese applicants are more interested in the domestic rather than overseas market⁴³⁷⁹.

4379 Ibid., 89.

Figure A.2.5. Overall number of patent applications by patent office

Source: WIPO, *Artificial Intelligence – Technology Trends 2019* (WIPO, 2019), 86

The issue of patentability of AI can be set in different terms in the various jurisdictions, and in particular China, the US and the EU, due to some specific limitations to the patentability of software (including AI techniques)⁴³⁸⁰. Section 101 of the US Patent Act, in defining the subject matter eligible for patent protection, contains an implicit exception for '[l]aws of nature, natural phenomena, and abstract ideas'. In applying this exception, the Supreme Court distinguishes between patents that claim the 'buildin[g] block[s]' of human ingenuity, which are ineligible for patent protection, from those that integrate the building blocks into something more, thereby "transform[ing]" them into a patent-eligible invention⁴³⁸¹. In *Alice v. CLS Bank International*, the Supreme Court implemented these principles to patent claims directed to a computer-implemented technique of

4380 For a comparative discussion, see World Economic Forum (WEF), *Artificial Intelligence Collides with Patent Law* (White Paper, WEF, April 2018), available at http://www3.weforum.org/docs/WEF_48540_WP_End_of_Innovation_Protecting_Patent_Law.pdf; UK IPO, *Artificial Intelligence A worldwide overview of AI patents and patenting by the UK AI sector* (June 2019), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817610/Artificial_Intelligence_-_A_worldwide_overview_of_AI_patents.pdf.

4381 *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 142 S.Ct. 1289 (2012).

intermediating settlements in the context of financial transactions⁴³⁸². The Court first found that the concept of intermediated settlement was an abstract idea and constituted a fundamental and long-prevalent economic practice in the system of commerce. It then held that claims that ‘require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention’⁴³⁸³. Hence, the fact that the well-established concept of intermediation is performed by a generic computer was not sufficient for making the claims eligible for patentability. It should also have been necessary to provide evidence that the technology improved the functioning of the computer or any other technology or technical field.

Under the joint *Mayo/Alice* test, courts should first assess if, on the whole, the claims are ‘directed to’ patenting an abstract idea, before, in the second step, considering whether the claims contain “an inventive concept” that would transform the nature of the claim into a patent-eligible application. According to the Court, the claim should contain “an element or combination of elements that is sufficient to ensure that the patent, in practice, amounts to *significantly more* than a patent upon the [ineligible concept] itself”. Such would be the case, if the claim limitations “involve more than performance of well-understood, routine, [and] conventional activities previously known to the industry”. This requirement of ‘significantly more’ contribution than the use of a generic computer implementation is assessed on a case by case basis by the courts. In subsequent cases applying the *Mayo/Alice* test for AI, the US courts have been quite narrow in their assessment of the criteria invalidating patent claims. For instance, in *Purepredictive, Inc. v. H2O.AI, Inc.*, the United States District Court for the Northern District of California held that the asserted claims of a US Patent covering AI-driven predictive analytics were ‘directed to a mental process and the abstract concept of using mathematical algorithms to perform predictive analytics’ that ‘do not make a specific improvement on an existing computer-related technology’⁴³⁸⁴. Similarly, in *Blue Spike, LLC v. Google Inc.*, the District court for the Northern District of California invalidated patent claims for covering a general purpose computer implementation of ‘an abstract idea long undertaken within the human mind’ because they sought to model ‘the highly effective ability of humans to identify and recognize a signal’ on a computer and they merely covered ‘a wide range of comparisons that humans can, and indeed, have undertaken since time immemorial’, thus lacking any ‘inventive concept’⁴³⁸⁵. This constructed narrowly the scope of patentability of AI. Further insights were brought by the recent USPTO guidelines⁴³⁸⁶.

In the EU, although computer programs ‘as such’ are, in principle, excluded from patentability in view of Article 52(d)(2) of the European Patent Convention which creates an exception to their patentability, by virtue of the interpretation of Articles 52(d)(2) and

4382 *Alice v. CLES Bank International*, 134 S. Ct. 2347 (2014).

4383 *Ibid.*

4384 *PurePredictive, Inc. v. H2O.AI, Inc.*, No. 17-2544 (Fed. Cir. 2018).

4385 *Blue Spike, LLC v. Google Inc.*, No. 14-CV01650-YGR, 2015 U.S. Dist. LEXIS 119382, at *13-16 (N.D. Cal. 8 September 2015), *aff’d* in *Spike v. Google Inc.*, No. 2016-1054, 2016 U.S. App. LEXIS 20371 (Fed. Cir. 2016)

4386 See, USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, (January 7, 2019), available at <https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf>.

52(d)(3), software-based patents may be eligible to patentability if the claimed subject-matter has a technical character. The European Patent Office ('EPO') has already granted thousands of patents related to software-based technologies and a quite complex, and not necessarily clear, jurisprudence of the Technical Boards of Appeal of the EPO has attempted to interpret the limits of patentability in this area⁴³⁸⁷. With regard to AI, the EPO recently published Guidelines for the examination of AI and machine learning which provide guidance on the assessment of whether an invention on AI and machine learning has the requisite 'technical character' so as to be patentable⁴³⁸⁸.

AI may also be protected by copyright, or as a trade secret, although these provide less exclusionary potential than patents and the constitution of a bottleneck, to the extent that only patents exclude the use of an idea, and not just the expression of an idea as it is in copyright law, that is covered by the scope of the patent.

Copyright can only protect the work of 'authorship' and this involves that the work must be created by a human being. Hence, this excludes machine-generated AI. Concrete computer programs for processing data are already protected by the copyright law of the EU Member States implementing Directive 2009/24/EC⁴³⁸⁹. However, this protection does not cover the functionality of a computer program⁴³⁹⁰ or the underlying general algorithm (understood as a set of rules to solve a problem step by step, independent of its expression and representation, e.g. the description of the steps to be made for analyzing or filtering data and the criteria to be applied). According to Drexler et al. This is already implied by Recital 11 of the 2009/24/EC Directive, which clarifies that copyright protection for computer programs should not extend to the 'ideas and principles which underlie any element of a program'.

Trade secret protection arises automatically to the extent that the trade secret owner shows that the information creates a competitive advantage by virtue of its secrecy and that reasonable measures have been taken to maintain its secrecy. Trade secret protection has recently gained in importance in order to protect technology, such as AI, with the creation by the 2016 Defend Trade Secrets Act (DTSA) in the US a federal civil cause of action for trade secret misappropriation⁴³⁹¹, as well as the recent EU trade secret directive⁴³⁹².

The specific regime instituted by the EU Database Directive does not cover algorithms. Although Article 1(2) stipulates that a "database" shall mean 'a collection of independent

4387 See European Patent Office, "Programs for Computers", Guidelines for Examination <https://www.epo.org/law-practice/legal-texts/html/guidelines/e/g_ii_3_6.htm>.

4388 EPO, Artificial Intelligence and Machine Learning, Guidelines for Examination, available at https://www.epo.org/law-practice/legal-texts/html/guidelines2018/e/g_ii_3_3_1.htm

4389 Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs, [2009] OJ L 111/16.

4390 See, Case C-406/10, SAS Institute Inc. v World Programming Ltd, ECLI:EU:C:2012:259, paras 39-41.

4391 S. 1890, §2(a), adding new 18 U.S.C. §1836(b)(1).

4392 Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, [2016] OJ L 157/1.

works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means', art 1(3) stipulates that '(p)rotection under this Directive shall not apply to computer programs used in the making or operation of databases accessible by electronic means'.

The patentability of AI has not been thoroughly discussed in China. Furthermore, Chinese copyright law excludes machine-generated works from copyright protection. In the first Chinese case addressing the copyright protection of AI-generated work, *Beijing Feilin Law Firm v Baidu Corporation*, the Beijing Internet Court decided that only works created by humans are eligible.⁴³⁹³ An interesting counterpoint to the Chinese model within the BRICS context is offered by India, where authorship, and therefore copyright protection, is attributed to the creator of the AI itself.⁴³⁹⁴

A second interesting development in the business and economic context of AI is the rise of acquisitions of small and more mature start-ups, in particular by US-based Big Tech, the number of acquisitions in the AI sector increasing by 33% between 2012 and 2017⁴³⁹⁵. The top acquiring companies include Alphabet, which accounts for 4% of acquisitions overall, Apple, Microsoft, Verizon, Amazon and Cisco⁴³⁹⁶. Companies from China and India are less well represented in acquisitions than they are in the number of publications or patent filings. Most of the companies acquired are in the US and the UK.⁴³⁹⁷ These US Big Tech companies are also the top litigation defendants, the amount of patent litigation rising in this area.

It is too early to say if the relative importance of a small number of Big Tech, and their aggressive expansion through acquisitions will tip the market in some AI functionalities to their benefit, as well as how network effects, learning effects and increasing returns to scale and scope may play in this specific context, in conjunction with IP protection and the competitive advantage it provides. Depending on the implications of the development of M&As and patenting in this area, a possible future bottleneck may arise.

4.3.4.1.5. Blockchain: towards a decentralization and disintermediation for the digital economy?

The Internet era gave rise to online intermediaries and digital platforms controlling and orchestrating value-generating ecosystems that not only offered products and online

4393 *Beijing Feilin Law Firm v Baidu Corporation*, No 239 [2019], Civil First Instance, Beijing Internet Court, 25 April 2019. See also Ming Chen, 'Beijing Internet Court denies copyright to works created solely by artificial intelligence' (2019) 14(8) *Journal of Intellectual Property Law & Practice* 593.

4394 See Andres Guadamuz, 'Artificial intelligence and copyright' (2017) *WIPO Magazine* 5/2017 <https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html> accessed 14 August 2019; and Robert C Denicola, 'Ex Machina: Copyright Protection For Computer Generated Works' (2017) 69 *Rutgers University Law Review* 251.

4395 Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure, [2016] OJ L 157/1, 106.

4396 *Ibid.*, Figure 6.3.

4397 *Ibid.* Figure 6.2.

services but also provided the infrastructure and tools on which other platform businesses can be built. In contrast, blockchain technology has been widely perceived as promising a decentralised and largely disintermediated model of organisation of the digital economy that would dispense with intermediaries and, consequently, the risk of monopolistic bottlenecks. While in the digital platform model only the centralised online platform collects information about past transactions, blockchain offers a distributed decentralised ledger, which keeps a complete record of all past transactions on the network. This enables all participants to have access to information about past transactions and, thus, ensures that no participant to the network enjoys a position of superior bargaining power due to informational asymmetries. This equality is furthered by the transparency of the process: each new transaction is broadcast to the entire network and each participant has the power to determine its authenticity. This breaks with the centralised data silos model of the platform economy, where only some actors have access to this information, as all interactions between the network participants happen through them, thus, enabling them to accumulate data, which, in turn, can help them to increase their bargaining power and to erect barriers to entry.

Of course, blockchain is not a monolith. There exist various types of blockchain, some of which are closer to the centralised ledger model of digital platforms. It is customary to distinguish 'private' or 'federated' blockchains from 'public' blockchains.

A private blockchain is controlled by a centralised entity, like an Intranet. Only the entity controlling the blockchain has the possibility to approve participants, to read and/or write new blocks and to validate the transactions. The entity also benefits from information concerning the identity of the participants. As with digital platforms, users are free to leave a platform in the case that competitive alternatives exist. However, it should be noted that contrary to digital platforms, each participant maintains a replica in sync of the ledger of digitally signed transactions, thus, guaranteeing the immutability of the blockchain. Private blockchains are transparent and can be read in real-time by a regulator.

Federated blockchains are private blockchains managed by a consortium of multiple organisations. As with private blockchains the participants are identified and pre-approved by the entity that manages the blockchain. The consensus process is controlled by a pre-selected set of nodes. R3 constitutes an example of an open-source and federated distributed ledger controlled by a consortium of more than forty financial companies and an ecosystem of more than 200 companies. R3 was put in place in 2015. Its aim was to develop apps for finance and commerce capable of running on its blockchain platform, Corda. The objective was to replace complex legacy systems that could not handle complex transactions and suffered from interoperating difficulties. Private or federated blockchains are usually permissioned, although one cannot exclude the possibility of a 'permission-less', private or federated blockchain (e.g. a Byzantine agreement)⁴³⁹⁸.

4398 A 'Byzantine agreement' or 'Byzantine fault tolerance' exists where participants to the blockchain, which are known and who possess a public key agree on a concerted strategy to sign with their public key, validating a block as it passes through their node. Once a predefined number of participants sign the block, this is deemed valid and added to the chain.

Public blockchains are closer to the decentralised model and are characterised by free entry: anyone may contribute to it by adding a block, execute the consensus protocol and/or maintain the shared ledger. Public blockchain protocols are open source. In principle, anyone can download the protocol and validate transactions. In this context, the blockchain is considered to be 'permission-less' (e.g. Bitcoin). There is also the possibility that, although in principle open to any participant, the participant should satisfy some conditions. The imposition of such would qualify the public blockchain as 'permissioned'. For instance, anyone can develop a decentralised application ('DApp') on Ethereum *so long as* they purchase some Ether (the native token of this blockchain). The network provides an incentive system in order to encourage more participants to join. This is done with either the release of native tokens or the payment of commission fees to miners and other developers for each transaction added to the chain. Due to its openness and the risk of double spending, public blockchains need an identity management system. This system enables the participants to the blockchain to achieve consensus. Each node in the network must solve a complex, resource-intensive cryptographic problem ('proof of work') or other mechanisms of pre-approval (e.g. 'proof of stake' etc.) for a new block to be added to the blockchain.

The use of blockchain technology offers numerous advantages, in comparison to interacting across different networks. First, it facilitates the organisation of micro-transactions. There is no need for a centralised network intermediating all transactions nor for administration costs to be incurred for each additional transaction. Blockchain may enable direct transactions to take place between the various nodes of a network, without being necessary for these to be administered from the centre of the network. This greatly reduces transaction costs. Consequently, micro-transactions that were too expensive to organise in the context of a centralised network because their value was lower than the administration costs are now, due to the much lower administrative costs of DLT, economically rational. Blockchain can thus charge lower fees than that which platforms usually charge.

Second, all transactions that run through blockchain benefit from in-built network neutrality, to the extent that the only criterion for processing a transaction is whether the appropriate fee has been paid. Contrary to platforms, it is not technically possible for an entity to either control the traffic in the blockchain network and/or differentiate the way in which various transactions will be executed in terms of speed, quality etc. In comparison to neutrality arising from the structure of a blockchain network, for digital platforms neutrality obligations are usually mandated by law⁴³⁹⁹.

Third, once a transaction is 'mined' into a block, after a certain period of time it is nearly impossible to reverse it because it would mean that you would have to re-mine the block and all the other blocks added on top of that; this computationally intensive operation would incur high costs that would likely be disproportionate to the value of

4399 See, for instance, the 2017 Google Search (Shopping) competition law, Case AT.39740, in the EU, regarding search neutrality, or the Proposal for a Regulation of the European Parliament and of the Council on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, 2018/0112 (COD), imposing neutrality requirements in the way digital platforms treat other websites and other businesses with regard to ranking etc.

reversing the original transaction. Transactions in blockchain thus become irreversible, and this reduces the risk of manipulation of the data by an operator, a risk that is very much present with regard to digital platforms.

Fourth, everybody can check the public ledger and verify whether the transaction took place or not, the identity of the sender and the locations between which the value was transferred. The transparency of the blockchain offers significant advantages to platforms when organizing a network of transactions, as transparency generates institutions-based trust, without that relying on the power of control exercised by an intermediary, as it is the case in platform-based networks. This has also profound implications as to the ability of each participant to this network to feel as though they are in control. One of the main features of blockchain-based applications is that users have absolute ownership of their assets (e.g. money, data etc.) without the need for any kind of custodian (e.g. banks, online intermediaries etc.). Thus, once someone generates a private key, no other person can claim the assets, confiscate them or deny access to them.

Fifth, blockchain leads to a reduction of economies of scale and network effects. These well-known features of digital platforms, to a large extent, explain the higher levels of economic concentration in the platform economy. New technologies require important investments and fixed costs for their development, which often lead to network effects (i.e. the use of a product or service by any user increases the product's value for other, potentially all, users). Indeed, the value of the product to one user is positively affected when another user joins and enlarges the network (i.e. 'positive network externalities'). For instance, an additional user of a search engine may increase the quality of search provided by this search engine because the search engine with its increased stock of queries can, through the data stemming user's expressed preferences, seek to better tailor the results displayed to the user. In turn, this process has the capacity to benefit all users. This 'positive feedback loop' mechanism explains the reason for these markets being so tippy and being characterized as 'winner-takes-most' competition. For instance, there might be fierce competition to conquer a market share advantage over rivals, with regard to the specific technology or standard applying in the industry, as the market may switch almost completely to the winner ('competition for the market').⁴⁴⁰⁰ Quite often, these products or services constitute a package of complementary products and technologies, which form a system competing with other systems ('systems competition').⁴⁴⁰¹ The value of the product does not always depend directly on the number of adopters but on the adoption of some complementary products that are bundled or packaged with the first product (think about a book reader and the content of the book).

Network effects lead to collective switching costs and lock-in effects, which reduce competition and may entrench the dominant position of the winner for a significant period

4400 Usual examples include the videotape format war between VHS and Sony's BETAMAX, or the competition between Windows and Intel from one side and Apple from the other for the microcomputer market. For an analysis of competition in open and closed systems see Competition and Markets Authority (UK) and Autorité de la Concurrence (France), "The Economics of Open and Closed Systems", (2014) Report.

4401 Michael Katz and Carl Shapiro, Systems "Competition and Network Effects" (1994) 8(2) Journal of Economic Perspectives, 93.

of time. Firms are quite imaginative in their business models, sometimes distributing the product for free on one side of the market, thereby inducing more users to join the network and, thus, increasing the value of the product for other users situated on the other, paying side of the market with this (multi or two-sided market) platform facilitating the interaction between these two different customer groups. Firm may also use various business practices, such as penetration pricing, where they charge low prices (even below their costs) to gain market share, or strategic bundling of their products in order to gain a foothold in another market prior to expanding its market share in this latter market. In these latter markets, it is possible that firms may incur losses for a significant period of time in order to invest in acquiring market share (either through natural growth or by buying out actual or potential competitors) or in order to constitute one-stop-shop solutions or essential platforms for various groups of customers. Competition between firms takes on unexpected forms, such as competing for consumers' attention (or eyeballs), eventually profiling them and using algorithms in order to predict and possibly manipulate their behavior.⁴⁴⁰²

Blockchain leads to lower network costs "both in the phase of bootstrapping a new platform and in the phase of operating it"⁴⁴⁰³. With regard to the advancing of a new platform, it is unclear if the development of a blockchain requires lower fixed costs than setting up a traditional centralised platform. Blockchains rely on a number of miners running a cryptographic program in order to verify the authenticity of the transactions in the decentralised ledger. The first generation of blockchains ('blockchain 1.0') relied on the proof of work ('PoW') concept. It required the use of the highest number of CPUs to validate a block. Miners had to go through more computational work in order to prove that a transaction hash is legitimate: the more computers used, the stronger the authenticity of the ledger becomes ('one CPU, one vote')⁴⁴⁰⁴. Miners running the cryptographic program start from the final hash of the current block hashed with the previous block searching for the answer to this mathematical puzzle (the 'proof string'). Once a miner discovers the correct proof string, this is broadcast to the rest of the network of other miners active on the system who will verify if all the transactions are valid and that the proof string broadcasted has, in fact, solved the puzzle. The number of verifications a string receives counts as votes leading the block with the highest number of verifications to win and, thus, to be officially added to the chain. The reward is released as soon as a new block is added to the chain. This can either consist on a coinbase reward (a native token that compensates the miners) or, in view of the diminishing returns of the coinbase reward, a fee (e.g. a percentage of the transaction). PoW thus relies on compe

4402 F. Pasquale, *The Black Box Society – The Secret Algorithms that Control Money and Information* (Harvard University Press, 2015).

4403 C. Catalini & J. Gans, "Some Simple Economics of the Blockchain", (2017), Rotman School of Management Working Paper No. 2874598, MIT Sloan Research Paper No. 5191-16, 12.

4404 Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System" (2008), <<https://bitcoin.org/bitcoin.pdf>>, 3, explains that "(i)f the majority were based on one-IP-address-one-vote, it could be subverted by anyone able to allocate many IPs. Proof-of-work is essentially one-CPU-one-vote. The majority decision is represented by the longest chain, which has the greatest proof-of-work effort invested in it".

tition between network participants (i.e. 'miners') on who will be the first one to validate the transaction.

PoW enables trustless consensus to develop by deterring attacks to the blockchain. This is done by raising the costs of an attack, as a successful attack requires a lot of computational power and a lot of time to do the necessary calculations. Miners perform a lot of calculations in order to generate blocks and maintain the security of the chain. Their role is to ensure the legitimacy of a transaction by avoiding any double-spending. The asymmetry of computational power required by those requesting the addition of a new block in the blockchain, in comparison to the rest of the network, means that, on average, a higher number of calculations needs to be performed each time in order to create a new block. Hence, the more the blockchain grows, the more hash and computational power algorithms are needed in order to generate consensus. The difficulty of the hash depends on the number of users, the network load and the current computational power used. The algorithm rewards the first miner that has completed this extra computational work and has solved this increasingly difficult mathematical problem thereby enabling the creation of this additional block or the release of the commission fee.

This computational work involves the consumption of a lot of electricity power and the use of computer hardware only focused on maintaining the operation and security of the blockchain. In addition to these variable costs, blockchain involves high fixed costs concerning storage. Contrary to platforms that may store information on the cloud, by paying a monthly fee for cloud storage, blockchain 1.0 projects require the storage of data indefinitely and, hence, must opt for paying upfront the storage costs. This, in turn, increases fixed costs, which could be considered as a barrier to entry for newcomers. The shift from centralised to decentralised cloud computing with data being maintained on both public and private clouds, may, nevertheless, reduce the costs of storage and the significance of this entry barrier. The PoW model is also risky as it may be subject to the '51% attack'. This may occur if a miner or pool of miners have attained 51% of the computing power thereby providing them the ability to re-write the entire blockchain. Although this could easily be observed by other participants of the network and could result in the value of the native token of the blockchain collapsing, the attackers may have more to win than to lose, as they may not own any of these native tokens. The risk of centralisation is particularly high when the mining activity is concentrated among a limited number of entities or pools, as is the case for Bitcoin mining, because of the costs engendered by the PoW approach.

The high costs of the PoW concept led the second-generation ('blockchain 2.0') projects (based on Ethereum) to switch to the proof-of-stake ('PoS') approach which requires far less computational power and, thus, far less electricity for the creation of cryptographic proof. In contrast to PoW system, which takes into account the amount of CPU devoted to the system, in a PoS system it is not the amount of computational power one is willing to spend in order to confirm the legitimacy of the block that counts for the payment of the reward. Rather the creators of a new block are chosen in a deterministic way that depends on the 'stakes' they hold. The weight to their vote is proportional to the

ownership stake they hold. For instance, a miner holding 2% of the total Bitcoins may have the possibility to mine 1% of the blocks. In PoS, miners are mostly rewarded with transaction fees. The system is preserved from double spending and attacks by the fact that a cyber-attack, for instance, by someone holding 51% of the computational power of the network may affect the value of the specific digital asset held with the result that it would make it disadvantageous to attack the network. The majority stake owner is therefore incentivized to maintain a secure network. This system drastically reduces the costs linked to the use of computational power (e.g. energy costs). However, such system may risk being exposed to the potential for a miner, or a group of miners, to monopolise it, to impose conditions on the rest of the network, which could involve the adoption of exploitative practices or leveraging practices in related markets. Hence, although the PoS approach is more secure than the PoW approach with regard to the risk of a 51% attack, given the importance of the stakes of the miners in preserving the value of the blockchain's assets, one cannot categorically exclude the possibility of abuse.

The incentives of the developers also differ between digital platforms and blockchain. Platforms rely on the indirect network effects they generate to incentivise developers to write applications for their (dominant) platform, as higher consumer use of a platform makes the platform more valuable for producers (this is called 'cross-side network effects'). Blockchain relies on an incentive system based on the venture capital model whereby early contributors earn tokens for providing the resources (capital and time) needed for the operations of the platform⁴⁴⁰⁵. Developers are attracted by the prospect of potential future profits generated by the appreciation in value of the native token, once the ICO is completed. Following the initial process of development of the blockchain, miners are initially compensated with native tokens; later they are compensated with the payment of transaction fees.

An important difference between the traditional centralised platform model and blockchain is that users of the latter are less anchored to the specific platform because of the risk of losing the data it contains. This may harm the users to the extent that the harvesting of data contributes to higher performance, as, for instance, search results become more personalised and irrelevant advertising is excluded. An important feature of blockchain is that information is distributed in a decentralised ledger and it is possible for anyone (in the case of public blockchain), or for a number of participants (in the case of a permissioned blockchain) to have access to it, particularly if they decide to switch to a different platform or blockchain 'fork'. Contrary to centralised platforms, where users are averse to switching, the replicability of data makes it easier for blockchain to switch to competing forks and abandon the older version of the blockchain⁴⁴⁰⁶. This has also important implications for indirect network effects, as blockchain developers (writing apps) and blockchain operators (e.g. miners) also have less reasons to be anchored to a specific platform. It is in their interest to be among the first to contribute to a fork be-

4405 C. Catalini & J. Gans, "Some Simple Economics of the Blockchain", (2017), Rotman School of Management Working Paper No. 2874598, MIT Sloan Research Paper No. 5191-16, 12.

4406 J. Abadi & M. Brunnermeier, "Blockchain Economics", (2018) <https://scholar.princeton.edu/sites/default/files/markus/files/blockchain_paper_v2c.pdf>.

cause if such were to attract a considerable number of existing users, in particular at the initial stages of its development, rewards (for mining) may be very high. Hence, contrary to centralised platforms which, due to indirect network effects have the capacity to dissuade competing platforms from entering into the market, by denying them access to an efficient scale (of developers and contributors etc.), or to maintain a competitive advantage over their competitors, in the case that there is entry, thereby leading to a gap between the fee charged by the incumbent and the fee charged by the entrant, these indirect network externalities are much lower for blockchain⁴⁴⁰⁷.

Sixth, the form that competition may take is different for blockchains than for centralised platforms. As indicated above, competition among platforms mostly takes the form of 'competition for the market', as network effects often lead to 'winner takes most' competition, with only one platform controlling, or being the significant player, for a relevant market or, more broadly, a value chain. Thus, markets marked by platform competition are concentrated, sometimes to such an extent that the second or third player in the market may not offer a viable competitive alternative to the established platform with the result that inter-platform competition remains weak and that there is significant inequality in the distribution of market shares among (horizontal) competitors. At the same time, the centralised platform forms a 'bottleneck' with the power to determine the allocation of the surplus generated by the value chain between the various contributors, and, in particular, to keep the overwhelming part of this surplus thereby accumulating significant profits for itself. In view of the (reported) low levels of users switching to competing platforms, platform operators can be confident that the reduction of vertical competition between the different segments of the value chain, with regard to the allocation of the total surplus value generated by the value chain, will not lead to a significant number of applications-developers deserting their platform. Hence, value chains dominated by digital platforms are also marked by a very unequal distribution of profits between the relevant established platform and other participants in the ecosystem. Users are also unable to identify how much value they add to the platform's operations as the history of transactions is not public and this information is only collected and stored by the platform or online intermediary.

In contrast, blockchain enables various forms of competition to intensify. First, due to the reduced significance of direct and indirect network effects, inter-platform competition is more intense. Both users and app developers may switch more easily to competing platforms. If a platform economy is characterised by 'winner-takes-most' competition or 'competition for the market', blockchain reverts the focus to 'competition in the market', as lower entry costs and the reduced significance of network effects have the potential to lead to less concentrated, more contestable markets. Quite significantly, horizontal competition is not only limited between the blockchain and other competing platforms but may also consist in competition from a 'fork' blockchain (i.e. the blockchain with a different set of rules), should the developers and users of a blockchain decide to migrate to the new one because of their dislike of the former system's existing

4407 Ibid, 3.

rules or blockchain governance. In this case, the information in the blockchain will be replicated thereby levelling the playing field between the 'old' and the 'fork' blockchain. At the same time, through their private key, users maintain information about their contribution to the value of the blockchain. The fact that this information is not controlled by a centralised ledger makes it possible to devise ways to compensate users for the value they add. Thus, vertical competition is more intensive and the surplus generated by the value chain more fairly distributed among the various contributors.

Despite the various advantages of blockchain in comparison to centralised platforms and the dominant decentralisation narrative, the choice of a decentralised distributed ledger does not dispense of any risk of intermediation and centralization.

There are different types of intermediaries⁴⁴⁰⁸.

Oracles serve as links between the blockchain and external 'off blockchain' events that may trigger the enforcement of smart contracts when these external conditions reach the level specified in the contract. *Oracles* bring data from an outside source onto the blockchain. There is a number of companies specialising in connecting web applications programming interfaces ('APIs), which allow software to interact with another piece of software), or any other data sources, thus, enabling the implementation of smart contracts and the interaction of the blockchain with the context external to it. In view of the relative failure of a decentralised and distributed Oracles network, such as Orisi for cryptocurrency contracts in which a large number of players operated as blockchain oracles reporting data from the outside⁴⁴⁰⁹, more centralized oracles solutions were developed, either by trusting the companies controlling the data sources or by involving third parties that developed authentication and verification procedures for external data sources – a distributed but not a decentralized oracle system). Oracles may even be algorithmic entities operating on the basis of sensors or other trusted data-feeds generated by devices (in the IoT environment), Big Data harvested from the Internet, or other trusted web application programming interfaces ('APIs'), thus, establishing a reliable connection between these APIs and the DApps. Therefore, their main function is to connect the blockchain to the real world. They may also serve as reliable sources of information about the external world when engaged in online dispute resolution systems⁴⁴¹⁰.

Curators perform a variety of technical functions, such as contributing to the selection of proposals coming from the contractors and/or preventing 51% attacks that could undermine the integrity of the blockchain⁴⁴¹¹. This form of architecture was selected for the decentralised autonomous organisation ('DAO') launched in 2016, with twelve curators, most of them respected and trusted Ethereum programmers, who were able to

4408 Ibid.

4409 See GitHub, Orisi White Paper (2014) <<https://github.com/orisi/wiki/wiki/Orisi-White-Paper>>.

4410 For instance, Jurico is a decentralized blockchain-based dispute resolution platform designed to help resolve smart contract-related disputes by allowing users to open disputes and then oracles to vote on whom won the dispute with the most votes making the decision, see Oliver Dale, "JUR ICO: Decentralised Dispute Resolution Platform", (Blockonomi.com, 11 July 2018) <<https://blockonomi.com/jur-ico/>>.,

4411 Ibid.

whitelist proposals (i.e. add contractor addresses to the DAO whitelist), by checking the identity of people submitting them (making sure that the code of the proposal actually originates from the contractor, thus, confirming that the proposal comes from an identified entity or person). These curators were also able to freeze the DAO activities in case of attack⁴⁴¹². The nature of this intermediary role involves curators being appointed by the token holders (most likely in the form of a 'multisig' contract) but potentially being fired by them at will. This control structure avoids the risk of centralisation.

For its operation, blockchain also requires the presence of a number of intermediaries, whose function is to either keep the blockchain operational, in principle by validating the transactions/blocs, or to enable transactions between different blockchains, thus, ensuring that the native tokens of one blockchain may be exchanged with those of another.

The first operation is performed by *miners*. 'Mining', in blockchain terminology, is the procedure that aggregates pending transactions in a block and by making a vast amount of cryptographic calculations ('hash functions') produces a valid outcome that satisfies a list of strict, predefined conditions encoded in software. The block is appended to the head of the blockchain and the procedure starts all over again. The miner is rewarded for the processing power spent to produce the block with either a newly generated coin or by a transaction fee. The Bitcoin architecture is a deflationary policy designed and implemented on a protocol level, with the quantity of bitcoins minted per block being reduced by 50% every 4 years ('halving period'). Initially, the block reward was 50 BTC, then 25 and in July 2016, it was reduced to 12.5. The aim is to ensure that the number of bitcoins in existence will not exceed 21 million and the last satoshis (i.e. the smallest denomination, one hundred millionth of a bitcoin) will have been mined by the year 2140.

During the first years of the network, a simple desktop computer could be used to mine bitcoins, which is compatible with Satoshi's vision of 'one CPU, one vote'. However, as it became more popular and its price appreciated, the attention bitcoins received led to the development of more efficient hashing hardware, thereby excluding from the market normal miners who were previously mining Bitcoin using their consumer grade hardware, such as computer processing units ('CPUs') and graphic processing units ('GPUs'). GPUs, and then field programmable gate array ('FPGA') devices, were used by sophisticated users for mining. Nowadays this can only be done by powerful specialized hardware that performs several billions of hash operations per second: application specific integrated circuits ('ASICs'). These ASIC devices, with chips developed for the purpose of mining specific algorithm, were developed by a small number of top Chinese companies. This has made bitcoin mining unprofitable for individuals and has led to the creation of big mining facilities, the so-called *mining farms*. Usually, these farms are built in places that provide cheap electricity, preferably combined with a cold environment for facilitating the dissipation of the excessive heat produced by the mining equipment. Most of them are located in China (60% of the total hashpower) due to the cheap coal-

4412 See S. Tual, "On DAO Contractors and Curators", (blog.slock.it, 9 April 2016) <<https://blog.slock.it/on-contractors-and-curators-2fb9238b2553>>.

based electricity as well as the abundance of hydro-electric facilities, while most of other locations are based on far north countries such as Canada, Sweden and Iceland. These facilities earn important revenues but they need to sell a big portion of the bitcoins produced in order to pay the bills and re-invest in hardware equipment since this becomes obsolete rather quickly. Mining pools enable the aggregation of various miners that want to invest in mining equipment but do not have a high enough hash-rate. The miners involved form big groups. They combine their computational power and share the resulting profits between them according to each individual's contribution. At the moment, there are many pools with different economic models but most of them take a portion of the profits as a fee. Other cryptocurrencies, such as Bitcoin Gold ('BTG') have adopted ASIC resistant algorithms to avoid the problem of mining centralization by big players and to instill trust in normal miners that they can use their average hardware for mining. This has led to a huge demand in GPUs. The stock of big manufacturers, like NVIDIA, have been emptied whilst the prices of GPUs have rapidly increased. This may, in itself, lead to some degree of centralization as fewer miners will be able to afford them and reach the minimum efficient scale.

Digital wallets and digital exchanges enable the exchange of native tokens of different blockchains, which, in turn, enables the development of blockchain-based digital marketplaces.

Digital wallets can be both software and hardware. The *hardware* wallets provide strong, banking-grade security. The keys that manage the funds are generated by the hardware whilst the transactions are signed internally and then broadcasted. Hence, there is no online exposure of the keys. This provides a lot more safety and reduces the potential for hacking as no connection to the Internet is required. There are three main hardware wallet providers: Ledger, which provides wallets for the average user ('Ledger Nano S/Blue') as well as security solutions ('Ledger Vault') for customers that demand higher guarantees, e.g. banks and hedge funds, Trezor and KeepKey.

Software wallets, on the contrary, do not require the purchase of any specialized device. They can run on a smartphone or desktop. They are less secure than the hardware ones because the attack vector is larger mostly because these devices require access to the internet and in order to be fully secure the underlying software platform needs to be secure, which is never the case e.g. a vulnerability in the Android OS can give full access to the wallet app and a potential hacker can steal the relevant funds. Most software wallets are open source projects, the development of which was initially dependent on user donations. Consequently, many of the wallets that were very popular in previous years have stopped being used due to halts in development. Since all of them are free to download and install, the common business model and, hence, the main source of revenue is based on fees charged for additional services and support. Recently, driven by the ICO explosion, most of them found another way to profit. They advertise and promote their service and support efforts, usually through the so called 'airdrops' (free token delivery to the wallet users). Some of the most popular wallets are Electrum, Green Address, Coinomi, Bitcoin.info, Jaxx, BitGo and Mycelium. An interesting development in this area

is the idea of a hybrid approach that integrates a fully operational exchange into the wallet. Wallet providers could take advantage of their user base and provide a user-friendly way for their users to buy and trade cryptocurrencies at the same time whilst they, as the providers, receive the fees charged for the services offered. One of the first attempts of this is Eidoo, a multicurrency wallet that aims to provide the service of a decentralized exchange. It is of great interest to note here that companies from the traditional fintech world are starting to consider this route as well. Revolut, a digital banking solution offering peer-to-peer payment options, pre-paid cards and multi-currency accounts and exchange, a few months ago announced the launch of a crypto-exchange offering their users the possibility of buying, storing and trading certain cryptocurrencies.

Blockchain intermediaries and other suppliers of resources may also constitute another possible centralisation lever to the extent that they can use their control over key inputs to shape competition on the marketplace in their favour. This, for instance, may be the case of an oracle that controls access to essential external data sources for the operation of specific smart contracts, exchanges or digital wallets that have become indispensable, for instance because of network effects, or because they gain critical mass by leveraging their dominant position from another network, external to the blockchain. An example would be a blockchain teaming up, on an exclusive basis, with a digital platform whose consolidation of a digital sector has resulted in it controlling some indispensable asset, such as storage on the cloud⁴⁴¹³. Blockchain entities may adopt strategies linking blockchain with complementary spheres or markets where the firm maintains some absolute strategic advantage. These will most often be markets with significant network effects, thus 'off-blockchain', but one may also envisage the possibility that an economic entity acquires such a preeminent position in the blockchain space.

One may also envisage the possibility that a dominant blockchain standard emerges that takes hold of blockchain applications, the same way operating systems and the need for standardization and interoperability led to the development of centralized structures in the pre-blockchain period. For instance, one may envisage the possibility that Ethereum, known for its smart contract technology, could develop to the dominant platform for decentralized applications ('DApp') and smart contracts in the blockchain space. It is very hard and irresponsible to make predictions in a nascent space like blockchain but since its launch, Ethereum has seen rapid development and mass adoption. The reasons behind that are that Ethereum benefitted from a first-mover advantage, as it was the first DApp and smart contract platform to enter the market, the flexibility and simplicity offered by the Solidity programming language in DApps are written on the Ethereum platform and the network effects that followed because most smart contract applications are written for the Ethereum platform (more than 250000 developers using the

4413 See A. Bartels, D. Bartoletti, J. Rymer, M. Guarini & R. Valdovinos, "The Coming Consolidation of Cloud", (2017) Forrester Report, noting that the three areas of greatest consolidation are currently in the base-level computing and storage known as infrastructure as a service ('IaaS'), desktop applications delivered via the cloud and customer relationship management. The report notes that the three largest providers in those markets already collectively hold 70 per cent or more of subscription revenues, with little chance that their market share declines. Amazon Web Services ('AWS') dominates the public cloud market, followed by Microsoft Azure and Google Cloud Platform.

Ethereum platform). The fact that Ethereum enables the implementation of blockchain technology in the wider economy, captured the attention of big corporations, banks and consulting firms (such as Intel, JP Morgan and Deloitte), which invested in the technology. Furthermore, Ethereum is supported by a non-profit organization, the *Enterprise Ethereum Alliance*, connecting “Fortune 500 enterprises, start-ups, academics and technology vendors” with the community of Ethereum subject matter experts, which forms a big network of collaboration and innovation promotion⁴⁴¹⁴. The openness and flexibility of Ethereum led to a number of DApp and smart contract applications being launched on the basis of this platform, which following the ICO explosion of the last three years has led to the emergence of the Ethereum ecosystem with a market capitalization worth around US\$45 billion in the second quarter of 2018⁴⁴¹⁵.

Although the crowdsourcing model for the funding of blockchain applications may preserve us from the problem of the same group of venture capitalists and institutional investors controlling or influencing it, one may not exclude the possibility that a core team of developers controls or influences competing blockchain applications. The small community of blockchain experts, some of whom have thousands of followers and exercise an undeniable influence over the actors’ perceptions of the evolution of the industry, provide some stakeholders with the power to frame the ongoing conversation/agenda about the future of the blockchain. Due to the important weight of its futurity dimension, this power may be easily converted to economic rents.

Blockchain technology has some inherent limitations that may interfere with the process of transforming the competitive advantage to dominance and higher profitability.

First, blockchain largely consists in combining code that is open source and could be easily replicated by competitors with purpose-built hardware, which is also available, sometimes at a relatively low cost, to competitors. Furthermore, blockchain technology does not enable the development of mechanisms isolating the incumbent from actual or potential competition. The possibility of developing a blockchain fork, in the case that some blockchain actors disagree with the blockchain developers, diminishes any likelihood that direct and indirect network effects will set high barriers to entry.

In order to transform the competitive advantage provided by capabilities acquired in blockchain technology to sustainable strategic advantage, economic actors should adopt conduct in complementary spheres or markets that will be strategically linked with the blockchain technology with the objectives of protecting the advantage provided by these blockchain capabilities and of limiting the possibility of their rivals to copy them. Thus, in order to protect their profits, economic actors will have to develop isolating mechanisms.

Acquiring a first mover advantage is certainly a successful strategy but for it to be maintained and eventually expanded on the firm should make considerable investments on

4414 See Enterprise Ethereum Alliance, “Introduction and Overview”, (entethalliance.org, 2017) <<https://entethalliance.org/wp-content/themes/ethereum/img/intro-eea.pdf>>.

4415 See Statista, “Market Capitalization of Ethereum from the 3rd Quarter 2015 to 2nd Quarter 2018” (statista.com) <<https://www.statista.com/statistics/807195/ethereum-market-capitalization-quarterly/>>.

innovation. It also makes sense for the firm to focus on difficult problems that no one else has previously explored, seeking technical solutions that could potentially be implemented in the whole industry.

Another mechanism to protect the competitive advantage in the long-term is technical complexity. By combining cryptographic techniques, unique computational power, cheap and extensive storage capabilities and powerful algorithms, firms can make it more difficult for their competitors to reproduce the firm's original competitive advantage. Attracting highly specialised staff (blockchain core developers), who have been specifically trained in this complex combination of assets, may also have significant effects on competition, in view of the relative scarcity of 'blockchain experts', at least at the initial stages of the development of this technology⁴⁴¹⁶.

This may be combined with a strategy of patenting blockchain technologies, developing an IP portfolio protecting investments in these technologies, and/or proceeding with a simple protection as a trade secret. The last option may not be that attractive as currently blockchain applications are open source (i.e. the source code is accessible and editable by everyone). This is essential in order to attract the user community. Although the original blockchain codes used for Bitcoin and Ethereum (smart contracts) are open source, patent applications may be made for algorithms improving the blockchain processing operations and/or for algorithms or hardware enabling new uses of blockchain⁴⁴¹⁷.

4.3.4.1.6. Future bottlenecks?: Quantum computing, private payment and monetary systems

The promise of cryptographic blockchain-generated and decentralised digital economy may not materialise if the development of technological innovations, such as quantum computing make blockchain-based systems vulnerable. Because of the superior ability of quantum mechanics to perform calculations in comparison to regular computers, they are not only able to perform certain tasks much faster, but also enable an exponential growth of computing power through 'entanglement', enabled by the state of superposition, as quantum computers rely on quantum bits (or qubits), which can be both a 0 and 1, contrary to regular computers which use binary units called bits, representing one of two possible states: 0 or 1. The development of quantum computing challenges the idea of blockchains' immutability, enabling a potential forger to perform reverse calculations faster than miners, thus taking control of the blockchain and its transaction history⁴⁴¹⁸. A possible way out of this conundrum is to make the blockchain a quantum-

4416 See M. Zduniak, "6 Ways to Stay Ahead of Blockchain Competition" (espeoblockchain.com, 23 May 2018) <<https://espeoblockchain.com/blog/blockchain-competition-example/>>.

4417 See the detailed discussion in I. Lianos, Blockchain Competition – Gaining Competitive Advantage in the Digital Economy: Competition Law Implications, in P. Hacker, I. Lianos, G. Dimitropoulos & S. Eich (eds.), *Regulating Blockchain – Techno-Social and Legal Challenges* (OUP, 2019), 329.

4418 See, the discussion in A. K. Fedorov, E. O. Kiktenko & A. I. Lvovsky, Quantum computers put blockchain security at risk, *Nature* (November 19th, 2018), available at <https://www.nature.com/articles/d41586-018-07449-z>.

based system itself⁴⁴¹⁹. The above is still a an hypothetical discussion, as we are three to five away from quantum-computing being applied in the real world and to perform operations better than a normal computer⁴⁴²⁰. However, there is a distinct possibility that the development of quantum computing platforms may constitute a further central point of control in the future, in particular as a number of Big Tech actors, such as Google, Microsoft and IBM, are investing in the field⁴⁴²¹. The market is also characterised by a number of active quantum computing start-ups, such as D-Wave Systems (funded in 1999) which has raised more than \$200 million of funding by December 2018, or Rigetti Computing (funded in 2013)⁴⁴²². The global quantum computing market revenue is projected to amount to \$2.2. billion by 2025, from a mere \$167 million in 2019⁴⁴²³, with some projecting even a market size of \$15 billion by 2028⁴⁴²⁴. Worldwide quantum computing patent applications are on the rise⁴⁴²⁵, with D-wave systems holding the largest number of patent families (grants/applications) worldwide, followed by IBM and Microsoft, although the three most recent years (2015-2017) IBM took the lead in the number of new patent families⁴⁴²⁶ US and Chinese Universities and research organisations have the most patent families (grants/applications) in this area⁴⁴²⁷. It is still unclear how network effects, increasing returns to scale and scope and learning effects will play in this area.

Private online and mobile payment systems and/or monetary systems may also emerge as an additional point of control, and therefore bottleneck. Digital payment systems are currently characterised by a tight oligopoly in the US (with a prominent role for Amazon Pay)⁴⁴²⁸ and in China (with a prominent role for Alipay)⁴⁴²⁹. Although the cryptocurrencies market is currently characterised by the dominance of Bitcoin, with a market capitalization of more than \$208 billion, almost tenfold more than the second one Ethereum⁴⁴³⁰, the high volatility has impeded the expansion of the use of cryptocurrencies in day-to-day transactions, the main drive for the development of Bitcoin being speculation. However, the recent announcement by Facebook that it will launch the 'low-volatility' Libra coin, on the basis of 'low-volatility' assets like bank deposits and government securities

4419 See D. Rajan & M. Visser, Quantum Blockchain Using Entanglement in Time (April 18, 2019), available at <https://arxiv.org/pdf/1804.05979.pdf>.

4420 See, https://techcrunch.com/2018/09/07/the-reality-of-quantum-computing-could-be-just-three-years-away/?guccounter=1&guce_referrer_us=aHR0cHM6Ly93d3cuZ29vZ2x1LmNvbS8&guce_referrer_cs=XwJHP6fo2Acy2tQZx_vXPA.

4421 See the discussion in M. A. Cusumano, A. Gawer and D.B. Yoffie, *The Business of Platforms* (Harper, 2019), 226-229.

4422 See, <https://www.statista.com/statistics/948545/quantum-computing-companies-by-funding-worldwide/>.

4423 See, <https://www.statista.com/statistics/962845/global-enterprise-quantum-computing-market/>.

4424 See, <https://www.statista.com/statistics/936010/quantum-computing-future-market-outlook-forecast/>.

4425 See <https://www.statista.com/statistics/947914/quantum-computing-patent-applications-worldwide/> (from 7 in 1999 to 925 in 2017, an increase of 13214%!).

4426 See <https://www.statista.com/statistics/948028/quantum-computing-patent-families-by-company/>.

4427 See, <https://www.statista.com/statistics/948122/quantum-computing-patent-families-by-university/> (listing in particular MIT, Zhejiang University, Tsinghua University, Yale University).

4428 See, <https://www.statista.com/forecasts/805854/popular-online-payment-systems-in-the-us>.

4429 <https://www.statista.com/statistics/426679/china-leading-third-party-online-payment-providers/>.

4430 See <https://coinmarketcap.com/>.

in currencies from stable central banks may mark, if this project will move successfully ahead, the emergence of a new model. Big Tech may develop private monetary eco-systems, combining cryptocurrencies with a payment system, on the basis of permissioned blockchain technology that could potentially change into a permissionless network over time, and in cooperation with established payment systems, as Facebook did with Visa and Mastercard as well as a number of corporate financial, telecommunications, and technology service providers, such as Coinbase, Mastercard, Visa, eBay, PayPal, Stripe, Spotify, Uber, Lyft, and Vodafone. This may constitute the next step in digital competition, following the emergence of multi-purpose messaging, social media and mobile payment apps, such as Tencent's WeChat, which already counts more than 1.1 billion monthly active users in 2019⁴⁴³¹. It is again too early to predict how these initiatives will play out and what would be their impact on digital competition and the constitution of new bottlenecks in the digital economy.

4.3.4.2. Strategic competitive advantage

Competitive advantage may result from strategies that aim to impede effective entry from rivals, either by increasing the potential rivals' costs, or by reinforcing the stickiness of consumer demand with the incumbent, thus limiting the possibilities of switching. In the context of the digital economy and platform competition, such strategies take more complex forms than the pure standalone product competitive strategies envisaged by 'simple economics' where firms compete on a relevant product market, the parameters of their competition being mainly the price and the quality of their specific product.

However, the digital economy is characterized by a more complex competitive game. This complexity has first taken the form of the constitution of *product platforms*⁴⁴³², a number of firms offering a package of complementary products and technologies ('systems competition').⁴⁴³³ These different 'families' of related products increase the costs of new entrants, as in order to compete they need to invest in both their core product and complements, in order to offer a competing 'family' of products, or to establish some form of cooperation with firms producing complements. If they do not do so, they may face the competitive risk of exclusionary strategies by the firm offering a family of products (firm A). The latter may choose to make its core product incompatible with others and either subsidize firms that produce the complementary products with a condition of exclusivity, or to subsidize its division that sells complementary goods. As a result of this strategy the value of the firm A's product, as well as imposes hurdles to firm A's rivals. This may create market power, although one must not exclude also possible pro-competitive justifications (e.g. quality certification, double marginalization avoidance if there is market power in complementary products' markets). To the extent that these practices may affect the same consumers, as these buy both the core and the comple

4431 See <https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/>.

4432 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019) 12.

4433 M L Katz & C Shapiro, 'Systems Competition and Network Effects' [1994] 8(2) *Journal of Economic Perspectives* 93.

mentary products, one may relatively easily sort out the effects of such strategies on consumer welfare.

Things get more complicated in the context of *industry platforms* which function at the level of the industry and 'bring together individuals and organizations so they can innovate or interact in ways not otherwise possible with the potential for nonlinear increases in utility and value'⁴⁴³⁴. This is archetypical of a complex economy situation, as the value here increases, or decreases, geometrically every time there is an additional (or one less) user in view of the network effects and the positive (or negative) feedback loops coming from connecting *different* (and not the same as in the previous product platform example) users to each other. Hence, the quality of a specific product, or even that of the 'family' of products is in this configuration less important than the value provided by the platform. What is even more remarkable is that in order to operate a successful platform strategy, it is not even necessary to produce or deliver any product or services, the main activity of the platform consisting in bringing 'together two or more market actors or "sides"'⁴⁴³⁵. Platforms should aim to take advantage of the positive feedback loops by devising strategies that create value for all user sides (the so called 'chicken and egg' problem that successful platforms need to resolve)⁴⁴³⁶.

Platform competition does not therefore only involve creating stand-alone value for a group of users, but value for all sides (two-sides or more) so that they come on board the platform simultaneously. Erik Hovenkamp further emphasizes the 'significant coordination challenge' of platforms: '(they) must maintain an adequate balance of participation levels within the two sides in order for *anyone* to derive value from its service', such balancing being 'a tangled and dynamic process: anything affecting participation on one side (such as the fees charged to its users) will necessarily influence the platform's appeal to users on the other side, which, in turn, affects the latter side's participation as well', which adds 'new layers of complexity to the analysis'⁴⁴³⁷.

As it is clear from the above, one needs to distinguish between a standalone product strategy, which has so far been the focus of competition assessment, and industry platform strategies, which is the prevailing competitive strategy in the digital economy. This is linked to the superior profitability of platforms, which also explains their high valuations by financial markets. In some recent research Cusumano, Gawer and Yoffie found that 'despite comparable revenues to other firms in the same industries' platform companies had typically 'about half the number of employees, much higher operating profits, and much higher market values as well as higher ratios of market value to sales'; they also spent 'significantly more on R&D and other expenses related to sales, mar-

4434 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019) 13.

4435 Ibid., 15.

4436 B. Caillaud & B. Jullien, *Chicken & Egg: Competition among Intermediation Service Providers*, (2003) 34 *Rand J. ECON* 309, 310 (note that two-sidedness 'give[s] rise to a chicken & egg problem: to attract buyers, [the platform] should have a large base of registered sellers, but these will be willing to register only if they expect many buyers to show up').

4437 E. Hovenkamp, *Platform Antitrust*, (July 24, 2018). *Journal of Corporation Law*, 2019, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3219396>, 3.

keting, and administration, but they also grew faster in revenues and market value⁴⁴³⁸. These made them 'more productive (in terms of sales per employee), much more profitable, and much more valuable than conventional public firms in the broader world economy'⁴⁴³⁹. At the same time the same authors that a significant amount of platforms failed, which led them to characterize the current platforms as 'survivors' of a cut-throat process of competition⁴⁴⁴⁰. This indicates that competition between platforms can be virulent.

Cusumano, Gawer and Yoffie note, however, that 'not every industry lends itself to a platform strategy' and explain that 'a platform strategy should prevail over a stand-alone product strategy when (1) there are opportunities to tap this innovation capabilities of outside firms to enhance value; and (2) it is more economical to enable transactions rather than to own assets and deliver products or services directly'⁴⁴⁴¹. This relates to the categorization by these authors of platforms in three 'basic types': *innovation platforms*, *transaction platforms* and 'hybrids'⁴⁴⁴². Innovation platforms 'usually consist of common technological building blocks that the owner and ecosystem partners can share in order to create new complementary products and services, such as smartphone apps or digital content'⁴⁴⁴³. *Transaction platforms* 'are largely intermediaries or online marketplaces that make it possible for people and organizations to share information or to buy, sell, or access a variety of goods and services'⁴⁴⁴⁴.

Although not envisaged by the authors in such a way, one may summarize the platform typology as merely referring to different dimensions of efficiency. First, the establishment of innovation platforms is linked to superior innovation efficiency as the control by a firm of a general purpose technology, or of a technology that cannot be easily duplicated by someone else provides this firm some superior ability to manage the process of adding complementary functionalities to that technology. Second, the creation of transaction platforms is linked to the superior transactional efficiency of an entity as an intermediary to the extent that it connects two different groups of users that were not previously linked. In any case the boundaries of what may constitute a platform and multi-sidedness are not clear, these not being just related to the characteristics of an industry but also being determined by the business strategies of the firms⁴⁴⁴⁵. As Erik Hovenkamp notes 'there is no universally-adopted definition of a two-sided platform,

4438 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019) ,22.

4439 Ibid.

4440 Ibid, 24 [counting 17 platforms as independent public companies from a sample of 252 platforms, 43 of which are still active (although not all independent), the other 209 going out of business].

4441 Ibid., 14.

4442 Ibid., 18.

4443 Ibid., 18-19.

4444 Ibid., 20.

4445 See, A. Hagiu & J. Wright, *Multi-Sided Platforms*, (2015) 43 (issue C) *International Journal of Industrial Organization* 162- (noting that past literature has treated "multi-sidedness" 'as a given characteristic of the relevant industries and firms' but that '(i)t is important to recognize, however, that many real-world organizations make choices that determine how close or how far they are from a multi-sided economic model, and that these choices carry significant economic trade-offs').

because most bright-line definitions are either under- or over-inclusive⁴⁴⁴⁶. Hybrids are the most successful platforms and combine elements of both transaction and innovation platforms. Cusumano, Gawer and Yoffie distinguish between an 'integrated hybrid' strategy, which connects a transaction and an innovation platform within the same firm, and a 'conglomerate hybrid strategy', which adds another type of platform but without connecting the two 'technically or operationally', thus resembling to a conglomerate⁴⁴⁴⁷.

The 'non-linear growth' of platforms may be explained by the 'winner takes most' competitive game they play. This is largely, but not uniquely, due to network effects. Cusumano, Gawer and Yoffie note that 'three critical issues' may explain the dominance of one platform, or a more fragmented market: '...the importance of different types of network effects; ... the impact on company performance of other factors – multi-homing (use of another platform for the same purpose at the same time) as well as niche competition and supply-side barriers to entry; and ... how digital technologies can influence network effects and other market drivers' through differentiation⁴⁴⁴⁸. This calls for an analysis of the following four drivers for strategic competitive advantage that may lead to a 'winner takes most' outcome.

4.3.4.2.1. The degree of network effects and multi-sidedness

Multi-sidedness is often a matter of degree. This is relevant not only in order to answer the question whether a platform strategy is adequate for a specific industry, but also in order to determine how the 'winner takes most' competitive dynamic will play out. According to Metcalfe's law, the effect of a network is proportional to the square of the number of connected users of the system (n^2)⁴⁴⁴⁹. The size of the network increases the value of the network. An additional user adds more value and therefore creates positive externalities for the members of the network, which he does not internalize. From this one may derive that the value of a network will also be related to the number of links between its nodes. Hence, for a network of n nodes, its utility value is $n(n-1)/2$. In the context of a platform/multi-sided context, the network effects are among two, or more, different group of users (indirect network effects). Indeed, 'each side's demand for the platform's service depends not only on the price it is charged by the platform, but also the number of users participating on the other side'⁴⁴⁵⁰. One may thus distinguish between situations of substantial inter-dependence in the demand between the

4446 E. Hovenkamp, Platform Antitrust, (July 24, 2018). Journal of Corporation Law, 2019, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3219396>, 9.

4447 M.A. Cusumano, A. Gawer & D. B. Yoffie, The Business of Platforms (Harper Collins, 2019), 95.

4448 Ibid., 31.

4449 This law was attributed to Robert Metcalfe who apparently expressed it in the 1980s. For instance, a phone network with 10 people has a utility value of 100 and a network with 100 people has a utility value of 10,000. For a discussion, see XZ Zhang, JJ Liu, ZW Xu, Tencent and Facebook Data Validate Metcalfe's Law, (2015) 30(2) Journal of Computer Science and Technology 246.

4450 E. Hovenkamp, Platform Antitrust, (July 24, 2018). Journal of Corporation Law, 2019, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3219396>, 9.

two, or more, groups of users, and situations where this inter-dependence in demand is weaker. In other words network effects may vary.

The existence of strong positive feedback loops may make the platform market to ‘tip’ to a dominant platform⁴⁴⁵¹. One would normally expect a strong ‘winner takes most’ dynamic in situations of substantial inter-dependence in demand, while in the presence of weaker indirect network effects, the ‘winner takes most dynamic’ may not play in the same way. This may be a factor of differentiation that depends on the ‘chicken and egg’ strategies of the various platforms and how successful they are in taking advantage of the indirect network effects in order to increase the utility value of their network, and therefore consequently the size of their network and so forth. As we have explained in Chapter 3, the platforms need to choose the market sides, and then determine which one will be subsidised by the money side, in which way, how much and when, so as to efficiently solve the chicken and egg problem.

4.3.4.2.2. Multi-homing

A second parameter determining the strength of the ‘winner takes most’ dynamic, is the possibility and level of multi-homing, that is the possibility of using multiple platforms at the same time and for the same purpose⁴⁴⁵². This will tend to arise within a given side if ‘(a) users on this side view the alternative platforms as reasonably substitutable; and (b) there are not significant fixed costs required before users can start using a given platform, nor any exclusivity contracts that prohibit users from multi-homing’⁴⁴⁵³. ‘Multi-homing can occur on both sides of the platform, just on one of them, or be impossible’⁴⁴⁵⁴. The fact that users multi-home (on either side) may weaken network effects, with the result that it may ‘inhibit a platform even with strong same-side (direct) network effects from fully monetizing cross-side (indirect) network effects’⁴⁴⁵⁵. Certain technologies may promote multi-homing while others less. For instance, the use of AI and the provision of highly personalised services may limit the incentive of consumers to multi-home. Users tend to single-home in search engines. Multi-homing is not only function of the technology and prevailing consumer habits in the industry, but may also be promoted or reduced through strategic conduct, involving various forms of marketing and branding. For instance, the level of multi-homing in browsers is generally lower in smartphones than in PCs, possibly because of the bundling strategies followed in the former, while it is relatively frequent that more than one browser are downloaded and used on a PC.⁴⁴⁵⁶ Multi-homing in app-stores may also be limited by exclusivity arrange-

4451 See, J. Farrell & P. Klemperer, Coordination and lock-in: Competition with switching costs and network effects, in R. Schmalensee & R. Willig (eds.) *Handbook of industrial organization* (North-Holland, vol. 3, 2007), 1967.

4452 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019), 41.

4453 E. Hovenkamp, Platform Antitrust, (July 24, 2018). *Journal of Corporation Law*, 2019, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=3219396>, 17.

4454 N. Duch-Brown, The Competitive Landscape of Online Platforms, JRC Digital Economy Working Paper 2017-04 (2017), available at <https://ec.europa.eu/jrc/sites/jrcsh/files/jrc106299.pdf>, 6.

4455 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019), 42.

4456 See N. Duch-Brown (n 366); C. Cennamo, H. Ozalp and T. Kretschmer, ‘Platform Architecture and Quality Tradeoffs of

ments, while in social media it may be affected by the amount of time people have to spend on social media providing similar functionalities, time being a scarce resource. The following table details the strength of multi-homing for various types of digital platforms.

Table A.2.1.: Multihoming

Platforms	Marketplaces	App-stores	Social networks	Online advertisement
Multi-homing	Medium for buyers; low/medium for sellers	Low for users; medium for developers	High for users and advertisers	High for users and advertisers, medium for publishers

Source: Adapted from N. Durch-Brown, *The Competitive Landscape of Online Platforms*, JRC Digital Economy Working Paper 2017-04 (2017), available at <https://ec.europa.eu/jrc/sites/jrcsh/files/jrc106299.pdf>, 9.

In devising their strategies firms should also take into account the heterogeneity of users preferences with regard to platform multi-homing⁴⁴⁵⁷. A market will tip, in one way or another, if the feedback loops among the various groups of users are strong. The more homogeneous the market is, the stronger the network effects will be, thus attracting the overwhelming majority of users⁴⁴⁵⁸. For instance, the market will tip if users of an app store care strongly about the availability of applications and developers care strongly about access to users. However, a market will be less tippy if for some reason users and developers have stronger and more differentiated tastes for the platform itself⁴⁴⁵⁹. It should also be expected that popular apps will also multi-home, most of the attractive apps being available to users whichever of the leading platforms they choose⁴⁴⁶⁰. The more multi-homing there is at the different sides of the platform, the more this reinforces the dynamics of inter-platform competition or competition between platforms and one-sided competitors on a product market thus making the field of the competitive game more contestable and can thus avoid tipping.

Multihoming Complements' (2018) 29(2) *Information Systems Research* 461; M. Anderson, 'Competition in two-sided markets' (2006) 37(3) *The RAND Journal of Economics* 668; and JC Rochet and J Tirole, 'Platform competition in two-sided markets' (2003) 1(4) *Journal of European Economic Association* 990.

4457 See, F. Park, R. Seamans & F. Zhu, *Multi-Homing and Platform Strategies: Historical Evidence from the US Newspaper Industry*, Working Paper 18-032 (Harvard Business School, 2018), available at https://www.hbs.edu/faculty/Publication%20Files/18-032_d71914fe-d56c-42ad-ae20-deb5b979fab9.pdf

4458 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019), 45.

4459 T Bresnahan, J. Orsini, P.-L. Yin, *Demand Heterogeneity, Inframarginal Multihoming, and Platform Market Stability: Mobile Apps*, Stanford University, Mobile Innovation Group Working Paper (September 15, 2015), available at <https://digital.hbs.edu/wp-content/uploads/2017/12/Demand-Heterogeneity-Inframarginal-Multihoming-and-Platform-Market-Stability-Mobile-Apps.pdf> 3.

4460 *Ibid.*, 33 (noting the crucial role of inframarginal developer multihoming decisions in this context and of the industrial organization of the supply of apps).

4.3.4.2.3. Differentiation and niche competition

A third parameter crucial for the emergence of a dominant platform is differentiation and niche competition⁴⁴⁶¹. The existence of network effects at the demand side, as well as learning effects and increasing returns to scale and scope at the supply side, make it extremely difficult for a new platform to compete with regard to the core functionality provided by a dominant platform once the market has tipped and the number of users increases slowly. This is in particular the case if a general purpose technology and/or the functionality provided by the platform is more mature, and we are not in a phase of diffusion where the demand is still untapped⁴⁴⁶². This provides a considerable competitive advantage to the dominant platform. The only way a new platform may erode the position of the leading platform is to differentiate itself from it and to focus on a specific market niche, taking advantage of the heterogeneity of the users. The aim would be to attract a sufficient number of users at one side of the platform so as to generate the indirect network effects that would bring users at the other side and will eventually aim to initiate a new market tipping process. It is not necessary though that the market tips for the platform to be successful. Focusing on a niche market may also be highly profitable. One may give the example of Apple's iPhone, which although having between a 12-15% market share of the global handset industry⁴⁴⁶³, accounted for 62 percent of the global mobile handset profit in 2018, in particular because of its policy of product differentiation⁴⁴⁶⁴, the premium segment of the global smartphone market being almost entirely controlled by Apple's iPhone⁴⁴⁶⁵. In addition to product differentiation, platform differentiation may also play an important role in maintaining competitive advantage. This may come with the addition of new functionalities so as there is no niche market for rivals to capture, thus preempting or marginalizing their entry and the potential competitive threat when this is still nascent. This may also be achieved by purchasing a potential rival that could threaten the dominant position of the platform. This may be a less costly strategy, than the possible risk of market tipping if the rival reaches the appropriate scale.

Although most successful digital platforms control a core business activity, from which they derive most of their revenues (see Figure A.2.6.), they have developed a strategy of active investment in other related markets, most frequently using practices leveraging their dominant position in order to provide their offer in the related market a competitive advantage.

4461 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019), 44.

4462 It is interesting to note here that the frequent tipping taking place at the initial stages of the development of a technology is frequently followed by a stable hierarchy where the top firms tend to be the same. The following graph with regard to the number of users of media digital platforms may provide an illustration: see, <https://www.youtube.com/watch?v=WLRA7qqijM0>.

4463 See, <https://www.counterpointresearch.com/global-smartphone-share/>.

4464 See, <https://www.statista.com/statistics/780367/global-mobile-handset-profit-share-by-vendor/>.

4465 According to recent statistics (May 2019), Apple's iPhone sales represent 96% of the premium segment: <https://www.statista.com/statistics/781736/global-percentage-premium-smartphone/>.

Figure A.2.6. Digital platforms' core business

Companies	Core Consumer Business	Other	Money-making machine
Alphabet	Search	Mobile OS You Tube	Advertising
Amazon	Resale of goods	Cloud Computing	Distribution mark-up
Apple	OEM and app dev. platform	Digital Content	Selling handsets
Facebook	Social Network	Messaging	Advertising

Source: Author's compilation

There may be several explanations for such practices of product or platform differentiation:

- (i) the platforms benefit from learning-by-doing by expanding their size and the scope of their activities, hence integrating new functionalities in the platform or proceeding to conglomerate strategies may promote learning-by-doing and make them more effective competitors and innovators. Learning effects are crucial in most industries, in particular at the early stages of their history.⁴⁴⁶⁶ Indeed, 'learning gives rise to a special kind of intertemporal externality in production'⁴⁴⁶⁷ as it implies dynamic scale economies in production.
- (ii) The platforms try to take advantage of their control of a bottleneck, or some form of positional advantage in the network, in order to extend their market power in adjacent markets. There may be two versions of this story.

The first is the classic leveraging story. It implies that the platforms will enhance their profitability by expanding in related markets. For instance, the platforms expand in other markets as this may attract more users, in particular in the money making side of the platform. For instance, by expanding in various vertical search engines or content platforms, a search engine may be able to harvest more specific data on its users and thus being able to make better predictions on their preferences, which is certainly something that is highly valued by the money side of the search engine platform, advertising. Hence, the platform may charge advertisers more and increase its profits.

4466 B. Zimmerman, Learning Effects and the Commercialization of New Energy Technologies: The Case of Nuclear Power, 13 Bell J. Econ. 297 (1982); M. B. Lieberman, The Learning Curve and Pricing in the Chemical Processing Industries, 15 Rand J. Econ. 213 (1983); M. Bell, B. Ross-Larson and L. Westphal, Assessing the Performance of Infant Industries, 16 J. Dev. Econ. 101 (1984). Cited in I. Lianos, A. Mateus and A. Raslan, Development Economics and Competition. A Parallel Intellectual History, CLES Research Paper Series 1/2012.

4467 P. Dasgupta & J. Stiglitz, Learning-By-Doing, Market Structure and Industrial and Trade Policies, (1988) 40 Oxford Economic Papers 246.

The second story is connected to financialisation. Here, leveraging will not directly aim in increasing profitability through higher prices in the product market of the money side, but to increase the valuation of the platform by financial markets to the extent that control of a strategic bottleneck may induce financial markets to form the belief that the platform will capture most of the surplus generated by the value chain(s) it is participating to in the future. Here, the advantage does not take the form of higher profitability but higher valuation of the platform asset on the basis of futurity thinking.

- (iii) A third possible explanation of these practices of differentiation in niche competition markets relate to maintenance of monopoly strategies. This may be considered as a combination of learning-by-doing and network effects arguments. As direct horizontal competition on the core business of the platform is extremely difficult, if not impossible, once the development of the GPT it controls has matured, because of the considerable barriers it benefits from (in terms of data harvested, installed base which it is difficult to switch, direct and indirect network effects), the platform only faces potential innovation competition by rivals in niche markets (at either side of the platform) or in vertically situated (to its core business) technology and product markets. A way to pre-empt these competitive threats to its position, the platform may decide to expand in these markets before a strong competitor takes hold and develops to a competitive threat to its core business. This differentiation may not be profitable, in the short-term, but makes sense if ones takes this as a risk management exercise from the platform's perspective. Some authors provide the example of Facebook's reaction to the development of Snapchat from a niche market actor to a potential competitor by cloning a popular feature of Snapchat (Snapchat stories) and implementing it to Facebook (Facebook Stories) and across its other social apps, Instagram and WhatsApp⁴⁴⁶⁸, which for some commentators it led to the slow 'gutting' of Snapchat with the latter's user base shrinking in 2018⁴⁴⁶⁹.

4.3.4.2.4. Barriers to entry

The fourth parameter contributing to the 'winner takes most' dynamic is the existence of barriers to entry in either side of the platform. Indeed, the presence of high barriers to entry leads to more industry concentration and raises the possibilities of tipping towards one or a small number of firms.

In the context of multi-sided platforms these may relate to network effects in the various sides of the demand, such as the number of users (customers), or the high number of apps, that provide the platform strong network effects. With regard to the latter, it has been alleged that the number and quality of apps has played a quite important role in the demise of Research in Motion's Blackberry, Nokia's Symbian and the failure of Microsoft's Windows' phone to compete effectively with Apple's iPhone and iOS and

4468 See, <https://www.businessinsider.com/facebook-stories-now-has-more-than-twice-as-many-users-as-snapchat-2019-4>

4469 See, <https://theweek.com/articles/822419/facebook-slowly-gutting-snapchat>.

Google's Android ecosystem in the OS for smartphone business. Bolstered by network effects, Apple and Google benefitted from a great number of popular apps. Cusumano, Gawer and Yoffie note that although in absolute numbers the number of Windows Phone apps grew considerably after its launch in 2010, with over 320000 apps by the end of 2014, this number could not compare with the 1.2 million apps of Android and 1.2 millions apps of iOS, in particular also because of the unavailability of popular apps, such as Instagram, in the Windows Phone, even after two years it had been available for iPhones and six months for Android phones⁴⁴⁷⁰.

Barriers to entry can also be found on the supply side. This will depend on the fixed costs for launching a platform business or a digital competitor in the specific industry. We have now a number of digital platforms that have been active for a relatively long period of time, some of them a few decades. This enables us to observe the evolution of costs through time, for different types of platforms, young and more mature (see Table 4.X.).

Table A.2.2. Young and Mature Digital Platforms or Re-sellers

Company	Founded	IPO	Latest report	Lifespan (in years)
Netflix	1997	2002	2018	21
Apple	1976	1980	2018	42
Amazon	1994	1997	2018	24
Google	1998	2004	2018	20
Facebook	2004	2012	2018	14

Source: Author's compilation

As for all sectors of the intangible economy, and contrary to tangible economy outside of the technology and information sector, variable costs are generally low⁴⁴⁷¹. However, they are not insignificant for all types of digital platforms. For instance, fixed costs as a proportion of total costs go from 69.75% for Facebook and 44% for Google to 15.89% for Apple, 29.75% for Netflix, and 30,52% for Amazon, the rest being variable costs. Hence, Apple, Netflix and Amazon are closer to the textbook paradigm of a company in the tangible economy, where variable costs are significant, than the textbook paradigm of the intangible economy, which is characterized by high fixed costs and low or almost zero variable costs, while platforms following the advertised-based model, such as Facebook and Google are closer to the textbook paradigm for the intangible economy.

The importance of fixed costs in the digital economy may also raise questions as to the ease of entry (see Table A.2.3.).

4470 M.A. Cusumano, A. Gawer & D. B. Yoffie, *The Business of Platforms* (Harper Collins, 2019), 134-135.

4471 See, H. R. Varian, *Economics of Information Technology* (July 2001), 5, available at <http://people.ischool.berkeley.edu/~hal/Papers/mattioli/mattioli.pdf> (noting that '(c)onstant fixed costs and zero marginal costs are common assumptions for textbook analysis, but are rarely observed for physical products since there are capacity constraints in nearly every production process. But for information goods, this sort of cost structure is very common—indeed it is the baseline case. This is true not just for pure information goods, but even for physical goods like chips. A chip fabrication plant can cost several billion dollars to construct and outfit; but producing an incremental chip only costs a few dollars. It is rare to find cost structures this extreme outside of technology and information industries').

Table A.2.3. Most important fixed costs for certain digital platforms

Digital Platform	Fixed Cost(s)
Netflix	Media content
Apple	R&D, retail space, data centres/servers
Amazon	Media content, warehouses and other logistical expenses, data centres/servers
Google/Alphabet	Headcount, data centres/servers, R&D
Facebook	Headcount, data centres/servers, cybersecurity, R&D

Source: Author's compilation

With fixed costs of \$21.57 billion in 2018 (from which \$10.2 billion go to R&D, \$7.8 billion to marketing and sales and \$3.4. billion to general and administrative costs) for Facebook it is difficult to see which other social media platform would be able to challenge its position and enter the market. Similarly, with \$45.8 billion of fixed cost (from which \$21.4 billion are spent on R&D, \$16.3. billion for marketing and sales and \$8.1. billion for general and administrative expenses) Google has erected a significant barrier to entry for any potential entrant.

The types of fixed costs for the various digital platforms vary and of course depend on the platform's integrative or conglomerate strategies. Box A.2.1. provides more details on some specific examples of platforms' fixed costs.

Box A.2.1. A panorama on Digital Platforms' fixed costs

Netflix

Potential fixed costs: media content.

Some commentators emphasize Netflix's low marginal costs and substantial fixed costs spent on content.⁴⁴⁷² Bandwidth can be considered as variable costs.⁴⁴⁷³

According to Netflix's 2018 Annual Report content commitments are of fixed cost nature and have multiple-year duration.⁴⁴⁷⁴ More specifically, it is mentioned that 'In connection with licensing streaming content, we typically enter into multi-year commitments with studios and other content providers. We also enter into multi-year commitments for content that we produce, either directly or through third parties, including elements associated with these productions such as non-cancelable commitments under talent

⁴⁴⁷² See for example Ben Le Fort, 'The Brilliance of Netflix's Business Model' (Medium, 14 March) <<https://medium.com/impact-economics/the-brilliance-of-netflixs-business-model-ab432a27dd96>> .

⁴⁴⁷³ Trefis Team, 'Why There Won't Be A Notable Improvement In Netflix's Domestic Contribution Margin In The Future' (Nasdaq, 26 October 2016) <<https://www.nasdaq.com/article/why-there-wont-be-a-notable-improvement-in-netflixs-domestic-contribution-margin-in-the-future-cm698980>> .

⁴⁴⁷⁴ Netflix Annual Report 2018, p. 4.

agreements. The payment terms of these agreements are not tied to member usage or the size of our membership base ("fixed cost") but may be determined by costs of production or tied to such factors as titles licensed and/or theatrical exhibition receipts. Such commitments, to the extent estimable under accounting standards, are included in the Contractual Obligations section of Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations"⁴⁴⁷⁵.

Netflix's cost structure makes a good example of a business dependent on fixed costs: 'The video streamer pulled in \$5.5 billion in revenue last year, \$3.7 billion of which went to the line item "cost of revenues," which management says is mostly content expenses, or what it pays to license the movies and TV shows its customers watch. Those are a form of fixed costs. Not surprisingly, the majority of Netflix revenue goes to content licensing and development, and the fixed nature of that cost explains why its earnings are so erratic from quarter to quarter and year to year. It also shows why Netflix highlights its subscriber figures in each report. Additional subscribers are highly profitable for Netflix, as its costs almost nothing to expand distribution to a new viewer. Subscription businesses tend to be built on fixed costs, as the cost to produce whatever content is being sold is the same whether there are one hundred subscribers or one million of them'⁴⁴⁷⁶.

Content amortization is included in "Cost of revenues" based on historical and estimated viewing patterns.⁴⁴⁷⁷ Hence, it is difficult to estimate fixed costs through marketing, technology and development, general and administrative expenses alone. Perhaps, other accounting entries such as streaming content obligations can be useful. Thus, 'Streaming content obligations' grew between 2014 and 2018 from \$9,451,112 thousands to \$19,285,875 thousands respectively (increase of 104%). It is difficult to compare these figures with earlier periods because Netflix seems to have changed its business model from renting out DVDs to producing its own content or acquiring content from third-parties. This shifts Netflix business model closer to being more fixed-costs oriented and its fixed costs should will continue to grow as they need to expand its content.

Apple

Potential fixed costs: research and development, retail space, technical infrastructure (data centers / servers).

Regarding the iPhone's production fixed costs, some commentators point out to 'anything from advertising costs to iPhone research/testing costs'⁴⁴⁷⁸ and 'research and development'⁴⁴⁷⁹.

4475 Ibid, p. 3-4.

4476 Jeremy Bowman, 'Total Cost Formula: How to Break Down Business Expenses' (The Motley Fool, 5 June 2015) <<https://www.fool.com/investing/general/2015/06/05/total-cost-formula-how-to-break-down-business-expe.aspx>> .

4477 Netflix Annual Report 2018, p. 29.

4478 Yoni Heisler, 'Apple and the myth of "The Law of Large Numbers"' (Network World, 19 April 2012), <https://www.network-world.com/article/2222188/apple-and-the-myth-of--the-law-of-large-numbers-.html>.

4479 Chuck Jones, 'How Important Is Apple's iPhone Market Share?' Forbes (29 May 2017) <<https://www.forbes.com/sites/>

As for the retail stores, Apple Annual Reports dated by 2010 and 2002 emphasize fixed costs in retail space: 'The Company's retail stores have required substantial fixed investment in equipment and leasehold improvements, information systems, inventory and personnel. The Company also has entered into substantial operating lease commitments for retail space, with terms ranging from five to 20 years, the majority of which are for ten years'⁴⁴⁸⁰. 'Expansion of the Retail segment has required and will continue to require a substantial investment in fixed assets and related infrastructure, operating lease commitments, personnel, and other operating expenses'⁴⁴⁸¹. As of 2018, Company makes capital expenditures in 'product tooling and manufacturing process equipment; data centers; corporate facilities and infrastructure, including information systems hardware, software and enhancements; and retail store facilities'⁴⁴⁸².

At the same time it is not clear how retail space expansion is relevant in the recent period since annual reports dated 2002 and 2010 emphasized such fixed costs at the time when Apple was creating its stores, but these stores have already been built and there is no comparable expansion taking place right now. On the other hand, Apple does claim in its 2018 Annual Report that 'the Company's retail stores have required and will continue to require a substantial investment and commitment of resources'⁴⁴⁸³.

It is possible that Apple's entrance into services and cloud business can increase fixed costs (data centers, etc.).

Amazon

Potential fixed costs: media content, warehouses / other logistical expenses, technical infrastructure (data centers / servers).

Amazon 2018 Annual Report explicitly states what its variable and fixed costs are: 'We seek to reduce our variable costs per unit and work to leverage our fixed costs. Our variable costs include product and content costs, payment processing and related transaction costs, picking, packaging, and preparing orders for shipment, transportation, customer service support, costs necessary to run AWS, and a portion of our marketing costs. Our fixed costs include the costs necessary to build and run our technology infrastructure; to build, enhance, and add features to our online stores, web services, electronic devices, and digital offerings; and to build and optimize our fulfillment centers and other facilities. Variable costs generally change directly with sales volume, while fixed costs generally are dependent on the timing of capacity needs, geographic expansion, category expansion, and other factors. To decrease our variable costs on a per unit basis and enable us to lower prices for customers, we seek to increase our direct sourcing, increase discounts from suppliers, and reduce defects in our processes. To minimize growth in

[chuckjones/2017/05/29/how-important-is-apples-iphone-market-share/#4d556d2a19ca](https://chuckjones.com/2017/05/29/how-important-is-apples-iphone-market-share/#4d556d2a19ca) .

4480 Apple Annual Report 2010, p. 16.

4481 Apple Annual Report 2002, p. 26.

4482 Apple Annual Report 2018, p. 30.

4483 Ibid, p. 13.

fixed costs, we seek to improve process efficiencies and maintain a lean culture⁴⁴⁸⁴.

Some commentators call Amazon 'a classic fixed cost business model'⁴⁴⁸⁵ and take the view that it replaces its variable costs with fixed one judging by its growing CAPEX and Gross Margin⁴⁴⁸⁶. The increase of Amazon's gross margin is the evidence that lowering cost strategy works.⁴⁴⁸⁷ Judging by a steady increase of gross profit margins from 1998 to 2018 Amazon tries to decrease its variable costs and invests heavily in increasing its fixed costs. It seems logical as Amazon shifts from simply being an intermediary between buyers and sellers to being a producer of content and provider of services (cloud, etc.).

Amazon continues to investment funds into fixed cost expansion. During 1st quarter 2019 Earnings Conference Call Amazon's CFO, Brian T. Olsavsky, drew attention 'to the investments that we made in 2016 and 2017. So we did front-load a lot of the investment both in fulfillment centers and also infrastructure'⁴⁴⁸⁸.

It is possible that Amazon's participation in cloud-computing business (Amazon Web Services) will force the company to increase its fixed costs.

Additionally, as Amazon participates in content-creation business, its fixed costs will also grow. For example, 'Amazon Prime has several fixed costs and several variable costs that go along with it. Fixed costs mostly include its cost of content for Prime Instant Video. Variable costs include things like shipping and music streaming. Unlike Costco, Amazon isn't able to send Prime membership fees straight to its bottom line. But it stands to reason that heavy Amazon users would be among the first to sign up for Prime. As Amazon goes after its next 50 million Prime members, they're likely looking for other benefits, such as video streaming, with the two-day shipping acting as an extra bonus. In other words, new members likely cost Amazon less in variable fees than older members, so Amazon is able to keep a larger chunk of that \$99 membership fee'⁴⁴⁸⁹.

Google

Potential fixed costs: headcount, technical infrastructure (data centers / servers), research and development.

According to the Alphabet Q1 2019 Earnings Call 'accrued Capex for the quarter was

4484 Amazon Annual Report 2018, p. 18.

4485 Jay Yarow, 'Former Amazon Employee Explains How The Company's Business Model Really Works' (Business Insider, 28 October 2013) <<https://www.businessinsider.com/amazons-profits-what-people-dont-understand-2013-10>> .

4486 Peter Cohan, 'How Amazon's Investments Could Wipe Out Retail Stores' Forbes (10 August 2016) <<https://www.forbes.com/sites/petercohan/2016/08/10/how-amazons-investments-could-wipe-out-retail-stores/#39183e39423d>> .

4487 Jeremy Bowman, 'This One Key Metric Says Amazon.com, Inc. Is Well On Its Way To Profitability' (The Motley Fool, 2 March 2015) <<https://www.fool.com/investing/general/2015/03/02/this-one-key-metric-says-amazon-is-well-on-its-way.aspx>> .

4488 Amazon.com Inc (AMZN) Q1 2019 Earnings Call Transcript, <https://www.fool.com/earnings/call-transcripts/2019/04/25/amazoncom-inc-amzn-q1-2019-earnings-call-transcrip.aspx>.

4489 Adam Levy, 'How Prime Makes Amazon Profitable' (The Motley Fool, 29 June 2018), <<https://www.fool.com/investing/general/2016/03/25/how-prime-makes-amazon-profitable.aspx>> .

\$4.5 billion, reflecting investments in data centers, servers and office facilities'⁴⁴⁹⁰. Discussing company's profitability Ruth Porat, CFO Alphabet and Google, said the following: 'with regard to Google Opex, the first quarter results once again reflect our ongoing commitment to investing for the long-term. You can see that in R&D, where we continue to invest in technical talent for priority areas like Cloud, Search and Machine Learning. In terms of Sales and Marketing, the pace of investment in Q1 reflected a timing shift in spend, and we expect these expenses to pick up in the second quarter. In Other Bets Opex, we are still early in the life of these companies and do plan to continue to invest meaningfully for the long-term opportunity'⁴⁴⁹¹ and 'we continue to expect a sizable investment in both compute requirements to support long term growth, as well as in office facilities'⁴⁴⁹².

Additionally, Ruth Porat elaborated on spending (growth in headcount) and CAPEX (technical infrastructure).⁴⁴⁹³

Google's fixed costs that resulted from infrastructure are considered to be its competitive advantage: 'Google has a number of advantages, perhaps foremost being the massive investments in its built infrastructure. Google's mission of "organizing the world's information" requires more than the most sophisticated "big data" software. It also necessitates huge investments in physical plant, particularly data centers, power systems, cooling technologies, and high-speed fiber optic networks. Google has built up a significant global infrastructure of data centers (increasingly located close to cheap, green tech) and connecting its storage systems, servers, and routers is a network of fiber optic switches. For example, the Eemshaven data center facility in the Groningen region of the Netherlands is at the end connection point for a transatlantic fiber optic cable. The US\$ 770 million data center is also being built near a power plant and contracts for other green energy providing an estimated 120 megawatts of cheap electricity. For the most part, the details on fixed costs are not readily available as they are proprietary and represent trade secrets'⁴⁴⁹⁴.

Facebook

Potential fixed costs: headcount, technical infrastructure (data centers / servers), cybersecurity, new technology research and development.

Some commentators in 2012 noted that 'infrastructure is Facebook's biggest cost, and to support growing traffic and network complexity, it will have to spend even more'⁴⁴⁹⁵

4490 Alphabet Q1 2019 Earnings Call, p. 3, https://abc.xyz/investor/static/pdf/2019_Q1_Earnings_Transcript.pdf?cache=ebdc584.

4491 Ibid, p. 4.

4492 Ibid.

4493 Ibid, p. 9-10

4494 Anthony J. Pennings, 'Google's competitive advantages – fixed costs' (17 March 2011) <<http://apennings.com/media-strategies/googles-competitive-advantages-fixed-costs/>> .

4495 Jessica Leber, 'The Biggest Cost of Facebook's Growth' (MIT Technology Review, 16 May 2012) <<https://www.technologyreview.com/s/427941/the-biggest-cost-of-facebooks-growth/>> .

and 'the company is investing heavily on data centres, networks, and servers to expand its reach throughout the world'⁴⁴⁹⁶.

Facebook claims that cyber-attacks and other data-security issues can adversely affect its business.⁴⁴⁹⁷ Hence, we can assume that costs related to maintaining the cyber-security represent a significant amount of company's fixed costs as in the short-run such costs do not vary with the number of users. Additionally, Facebook emphasizes that the amount of technical infrastructure (including network capacity and computing power) has to be increased since the amount of information shared on Facebook grows.⁴⁴⁹⁸ Its own data centers are an example of infrastructure Facebook is investing in.⁴⁴⁹⁹ Facebook also identifies sources of expense growth: expanding data center capacity, network infrastructure, office facilities, investments in safety and security, marketing, and video content.⁴⁵⁰⁰ Expenses on technical infrastructure (data centers) can also be considered as fixed costs, but Facebook includes it into 'cost of revenue' entry on the income statement, making it difficult to estimate as a stand-alone fixed costs.⁴⁵⁰¹

Additionally, Facebook engaged in long-term technology initiatives (connectivity, AI, AR and VR).⁴⁵⁰² Expenses on such initiatives can be classified as fixed costs.

In the latest earnings call Mark Zuckerberg elaborated on the plans to develop 'digital living spaces' focused on privacy.⁴⁵⁰³

Facebook's CFO, David Wehner, elaborated that CAPEX is spent mainly on data centers, servers, office facilities, and network infrastructure.⁴⁵⁰⁴ CAPEX is expected to be driven by investments in data centers and servers in the near future.⁴⁵⁰⁵ Additionally, it was stressed that long-term outlook is to 'invest in core product, infrastructure, innovation, and safety & security'⁴⁵⁰⁶. As for the general outlook on expense growth company's CFO said the following: 'we're not providing specific guidance but I'd note that we continue to invest aggressively across the business and there's no change in our long-term outlook on the need to invest heavily in areas like safety and security, innovation in our core product and infrastructure and the ultimate impact that those will have on our operating margin. We're still positioned to invest aggressively both in 2019 and beyond'.⁴⁵⁰⁷

4496 Trefis Team, 'Here's Why Facebook's Expenses Are Soaring' Forbes (8 July 2015), <<https://www.forbes.com/sites/great-speculations/2015/07/08/heres-why-facebooks-expenses-are-soaring/#bea266542973>> .

4497 See Facebook Annual Report 2018, p. 14.

4498 Ibid, p. 21.

4499 Ibid, p. 22.

4500 Ibid, p. 35.

4501 See ibid, p. 45.

4502 Ibid, p. 35.

4503 See First Quarter 2019 Results Conference Call (April 24, 2019), p. 2, [https://s21.q4cdn.com/399680738/files/doc_financials/2019/Q1/Q1-'19-earnings-call-transcript-1\).pdf](https://s21.q4cdn.com/399680738/files/doc_financials/2019/Q1/Q1-'19-earnings-call-transcript-1).pdf).

4504 Ibid, p. 8.

4505 Ibid, p. 9.

4506 Ibid.

4507 Ibid, p. 14.

Zuckerberg added that 'I'll just add on the cost point that this is something that I'm focused on personally. I care a lot about making sure that we want make the right investments in safety and innovation long term, so I'm committed to doing that'⁴⁵⁰⁸.

It is also interesting to observe the evolution of fixed costs in the digital economy. Fixed costs as a proportion of total costs during the period fell for Netflix and Apple, while they increased for Amazon and remained roughly flat for Google and Facebook. (see Table A.2.4.)

Table A.2.4. Evolution of fixed costs (as a percentage of total costs) from launch to most recent

Netflix	1998	2002	2006	2010	2014	2018
Fixed costs	No data	52.49%	33.43%	28.23%	26.45%	29.75%
Apple	1978	1986	1994	2002	2010	2018
Fixed costs	No data	No data	22.16%	27.33%	15.58%	15.89%
Amazon	1993	1998	2003	2008	2013	2018
Fixed costs	No data	9.32%	17.25%	16.19%	22.12%	30.52%
Google	1998	2002	2006	2010	2014	2018
Fixed costs	No data	48%	40%	45%	48%	44%
Facebook	2003	2006	2009	2012	2015	2018
Fixed costs	No data	No data	No data	70.03%	75.50%	69.75%

Source: Author's compilation

A platform acts to create barriers to entry, in particular with the development of a two-sided market of complementary goods, the choice of an open or close interfaces and Application Programming Interfaces' (APIs) policy is crucial⁴⁵⁰⁹. As Mulligan notes, 'open interfaces between sub-systems of a platform acts to re-enforce barriers to entry, while open APIs act to develop the market for complementary goods and services'⁴⁵¹⁰. Open APIs may allow for 'divided technology leadership' when a number of different firms supply platform technologies, without any of these firms having the ability to block the widespread distribution of platform improvements⁴⁵¹¹.

⁴⁵⁰⁸ Ibid.

⁴⁵⁰⁹ N. Economides & E. Katsamakas, Two-Sided Competition of Proprietary vs. Open Source Technology Platforms and the Implications for the Software Industry, (2006) 52(7) Management Science 1057.

⁴⁵¹⁰ C.E.A. Mulligan, The Communications Industries in the Era of Convergence (Routledge, 2012), 54.

⁴⁵¹¹ T. Bresnahan & S. Greenstein, Mobile Computing: The Next Platform Rivalry, (2014) 104(5) The American Economic Review 475 (observing such limited form of divided technical leadership in the smartphones market, in which one firm continues to be the platform sponsor but cannot fully control applications developers, noting the tensions between Apple and Google over the use of Maps).

4.3.4.3. Financial sources of competitive advantage

In view of the important fixed costs for the launching of a digital competitor, the possibility to tap from dedicated financial resources for tech companies is crucial. It was Joseph Schumpeter who first articulated this important relationship between the entrepreneur – who Schumpeter viewed as the driver of economic growth – and financial markets.⁴⁵¹² However, the nature of startup enterprise imposes challenges in accessing finance, especially in the technology sector.⁴⁵¹³

With negligible performance history, startups may struggle to gain sufficient financial resources.⁴⁵¹⁴ Reflecting inherent issues of moral hazard and adverse selection,⁴⁵¹⁵ market entry may therefore be inhibited by high financial barriers to entry. Likewise, financial barriers are especially acute in sectors characterised by high sunk costs and lengthy periods between R&D and commercialisation, such as the technology sector. The innovative focus of the tech sector compounds this, with access to finance further constrained by the inherent uncertainty of the innovation process and the high cost and effort of monitoring R&D activities.⁴⁵¹⁶

The importance of financial barriers to entry is exacerbated by the rising capital-intensity of tech startups. Traditionally, innovation in the tech sector has been relatively capital efficient, with Microsoft and other early innovators reaching IPO stage with less than \$20 million raised privately.⁴⁵¹⁷ However, innovation in this space is becoming costlier as startups seek to disrupt industries dominated by powerful incumbents.⁴⁵¹⁸ Larger sums of funding is required for potential competitors to reach ‘escape velocity’.⁴⁵¹⁹

In light of the need for financial capital, funding is raised through discrete funding stages, with different forms of funding available at different stages of the development of the tech company:

- (i) ‘seed’, ‘pre-seed’, and ‘angel’ funding. This constitutes ‘the first institutional check raised by a new startup, typically in an unpriced round, prior to raising a Series A round’⁴⁵²⁰. Founding teams raise this capital from various sources: friends and family, wealthy angels, accelerator programs, and dedicated pre-seed funds;
- (ii) Early stage funding, which include all Series A and Series B rounds, as well a subset of rounds from other transaction types;

4512 Joseph A Schumpeter, *The Theory of Economic Development* (Harvard University Press 1911).

4513 DJ Denis, ‘Entrepreneurial Finance: An Overview of the Issues and Evidence’ (2004) 10 *Journal of Corporate Finance* 301.

4514 Annamaria Conti, Marie Thursby and Frank T Rothaermel, ‘Show Me the Right Stuff: Signals For High-Tech Startups’ (2013) 22(2) *Journal of Economics & Management Strategy* 341.

4515 See George A Akerlof, ‘The Market for “Lemons”: Quality Uncertainty and the Market Mechanism’ (1970) 84(3) *The Quarterly Journal of Economics* 488.

4516 Valerie Revest and Alessandro Sapió, ‘Financing technology-based small firms in Europe: what do we know?’ 39(1) *Small Business Economics* 179.

4517 Paul Asel, ‘The changing nature of venture capital’ (25 June 2019) <https://techcrunch.com/2019/06/25/1828292/>

4518 *ibid.*

4519 *ibid.*

4520 See, <https://news.crunchbase.com/news/the-q2-2019-global-venture-capital-report-a-market-gone-sideways/>

- (iii) Late-stage venture is defined as ‘the set of rounds including Series C, Series D, Series E, and beyond, plus a subset of rounds from other transaction types’.
- (iv) Technology growth is a ‘private equity round raised by a company that has previously raised a “venture” round’⁴⁵²¹.

An eco-system of specialised tech funding companies has emerged in recent years to finance startups across these funding rounds. The prominent types of financial market actors in this space are noted below.

First, *venture capital (VC) firms*. VCs are the traditional entities that finance risky, uncertain startups in the technology sector. VCs invest for financial returns, being experts in ‘building companies’⁴⁵²².

VC firms, such as New Enterprise Associates, Accel, Andreessen Horowitz, Bessemer Venture Partners, GV, Index Ventures, Sequoia Capital, Bessemer Venture Partners, Tiger Global Management, or early-stage **venture funds** and seed accelerators, such as 500 startups, Plug and Play Tech Center, Keiretsu Forum are managed funds raising pools of capital (most frequently from limited partners) to fund and mentor start-ups or other young tech companies in exchange for minority equity in the company. In addition to providing financial resources, portfolio companies benefit from VCs’ strategic guidance and industry knowledge.⁴⁵²³

Tech-focused VCs grew out of a collection of individuals, and firms with a few partners, that funded start-up projects to global organizations with a number of specialists in human resources, marketing, finance, engineering, legal and investor relations to support their investment and fundraising activity⁴⁵²⁴. Their funding commitment is often structured as 10-year commitment with a period of initial investments (typically 3-6 years), with subsequent follow-on investments over the remainder of the fund’s life-cycle. Institutional VCs exercise control over their portfolio investments, often take a board seat and work closely with the leadership team.⁴⁵²⁵

The sector has been consolidating as venture capital is becoming more capital-intensive, to the extent that start-ups require more capital in a markets with large incumbents in order to achieve escape velocity. The changing nature of the VC industry means that VC is not anymore simply a syndicate of investment professionals but groups that include experts in talent acquisition, sales, product marketing and finance to accelerate venture growth⁴⁵²⁶. They intervene at all stages of the development of a company, from idea to late stage.

Second, *Corporate Venture Capital firms (CVCs)*, such as Google Ventures, Salesforce Ventures, Intel Capital, Baidu Ventures, Legend Capital, SBI Investment, have usually stra-

4521 Ibid.

4522 See, <https://www.cbinsights.com/research/corporate-venture-capital-institutional-venture-capital/>.

4523 See J Lerner, ‘Venture capitalists and the oversight of private firms’ (1995) 50 *Journal of Finance*; HJ Sapienza, ‘When do venture capitalists add value?’ (1992) 7 *Journal of Business Venturing* 9.

4524 See, <https://techcrunch.com/2019/06/25/1828292/>.

4525 See John Gilligan and Mike Wright, *Private Equity Demystified: an explanatory guide* (ICAEW Corporate Finance 2014).

4526 See, <https://techcrunch.com/2019/06/25/1828292/>.

tegic objectives investing on the specific company and offering it an in-depth industry knowledge and access to potential customers. They can be organized as an independent arm of a company or a designated investment team off their company's balance sheet⁴⁵²⁷. They usually invest in early to mid-stage companies. Their role is usually limited in the management of the companies, often taking a board observer role.

Third, *Private Equity (PE) firms*, such as Silver Lake, Francisco Partners, and Vista Equity are often active in mature companies in traditional industries, although they are increasingly buying out also VC-backed tech companies, often taking a majority stake (50 percent ownership or more), typically through debt rather than equity.

We propose that the nature of this finance ecosystem creates a bottleneck that shapes the competitive landscape. This is related to the both the economic geography of VC and the consolidation that has occurred in the VC industry over recent years. Each of these factors is addressed in turn below.

Although there has been a degree of internationalisation in recent years, due to high levels of involvement between VCs and their portfolio companies (e.g. monitoring), VC funding is typically restricted to the geographic location of the VC firm.⁴⁵²⁸ This economic geographic perspective helps to explain the importance of the Silicon Valley area in California.⁴⁵²⁹

With respect to financial industry consolidation, at the turn of the millennium, Paul Gompers and Josh Lerner foresaw that "[t]en years from now...a handful of industry leaders will likely dominate the field – leaders who will command far greater financial and human resources than their competitors."⁴⁵³⁰ Almost twenty years later, their prediction has materialised. With capital-intensity rising, capital flows primarily to a select group of large, brand name companies.⁴⁵³¹ Such dominant firms, including the firms noted above, frequently act as 'lead investors', which are often granted a seat on the board of directors, initiate deals, contribute the most capital, and lead due diligence and value negotiation efforts.⁴⁵³²

Furthermore, the significance of these dominant firms is amplified by their ability to enhance the reputation of portfolio companies and catalyse further investment.⁴⁵³³

4527 Ibid.

4528 Although there has been a degree of internalisation in recent years, due to high levels of involvement between VCs and their portfolio companies (e.g. monitoring), VC funding is typically restricted to the geographic location of the VC firm. See Henry Chen, Paul A Gompers, Ana Kovner and Josh Lerner, 'Buy Local? The Geography of Successful and Unsuccessful Venture Capital Expansion' (2010) 67(1) *Journal of Urban Economics* 90.

4529 See also Emilio J Castilla, 'Networks of venture capital firms in Silicon Valley' (2003) 25(1/2) *International Journal of Technology Management* 113; Michel Ferrary and Mark Granovetter, 'The Role of Venture Capital Firms in Silicon Valley's Complex Innovation Network' (2009) 38 *Economy and Society* 326.

4530 Paul A Gompers and Josh Lerner 'The Money of Invention: How Venture Capital Creates New Wealth' (2001), 248.

4531 Robert Nolan, 'The Consequences of Concentration in Private Equity' (2018) *Global Regulatory Outlook 2018*; Paul Asel, 'The changing nature of venture capital' (25 June 2019) <https://techcrunch.com/2019/06/25/1828292/>.

4532 <https://techcrunch.com/2019/06/25/1828292/>

4533 See generally, Stephanie A Fernhaber and Patricia P McDougall-Covin, 'Venture Capitalists as Catalysts to New Venture Internalization: The Impact of Their Knowledge and Reputation Resources' (2009) 92 *Scholarship and Professional Work*

As noted, because startups are inherently disadvantaged by a negligible performance history, potential investors have limited information on which to assess the company. Therefore, in the presence of uncertainty, investors may base part of their assessment on the reputation of those firms with which the startup is associated.⁴⁵³⁴ It is well documented that new ventures leverage the reputation of their lawyers, accountants and bankers to signal their own credibility.⁴⁵³⁵ We propose that the dominant VCs, CVCs and PEs play a similar role for tech startups, acting as quality certification providers for other investors.⁴⁵³⁶ Startups gain or suffer due to the reputation of their lead investors.⁴⁵³⁷ Evidentially, the time-to-IPO of tech startups is positively related to the reputation of VC investors.⁴⁵³⁸ Moreover, once invested in a startup, large VCs use their high 'social capital' and extensive networks to encourage other financial market participants into the investment.⁴⁵³⁹

In this respect, not all investors are of equal importance: securing investment from a prominent VC, CVC or PE can catalyse access to other financial resources and help startups overcome financial barriers to entry. These reputational and social aspects of VC financing reinforce the significance of the dominant firms, heightens barriers to entry for startups and tightens the bottleneck in the tech industry.

In a recent working paper, Ufuk Akcigit and his colleagues examine the importance of VC to the success of startups, providing empirical validation for the bottleneck narrative we propose here.⁴⁵⁴⁰ Akcigit et al observed VC-funded startups over a period of 10 years against a control group of comparable non-VC funded startups. The paper finds that VC-backed startups are characterised by higher growth rates and are more innovative, as measured by firm employment and patenting activity, respectively.

Over the observed period, average employment in VC-funded firms increased by 475 per cent compared to 230 per cent for non-VC-funded firms,⁴⁵⁴¹ while the VC-funded firms' average patent stocks grew by approximately 1100 per cent, compared to 440 per cent for the control group.⁴⁵⁴² Furthermore, the study suggests that prospects are

– Business.

4534 See JM Podolny, 'Market uncertainty and the social character of economic exchange' (1994) 39 *Administrative Science Quarterly* 458.

4535 CJ Fombrun, *Reputation: Realising value from the corporate image* (HUP 1996)

4536 See R Gulati and MC Higgins, 'Which ties matter when? The contingent effects of interorganizational partnerships on IPO success' (2003) 24 *Strategic Management Journal* 127.

4537 Stephanie A Fernhaber and Patricia P McDougall-Covin, 'Venture Capitalists as Catalysts to New Venture Internalization: The Impact of Their Knowledge and Reputation Resources' (2009) 92 *Scholarship and Professional Work – Business*.

4538 SJ Chang, 'Venture capital financing, strategic alliances, and the initial public offerings of Internet startups' (2004) 19 *Journal of Business Venturing* 721.

4539 Oliver Alexy, Joern H Block, Philipp Sander and Anne LJ Ter Wal, 'The Social Capital of Venture Capitalists and Its Impact on the Funding of Start-Up Firms', Working Paper 2010.

4540 Ufuk Akcigit, Emin Dinlersoz, Jeremy Greenwood and Veronika Penciakova, 'Synergizing Ventures' (2019) NBER Working Paper No 26196, available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3406177>, accessed 6 September 2019.

4541 *ibid*, 13.

4542 *ibid*, 15.

improved if startups are funded by more experienced VCs. Akcigit divide VCs into ‘high’ and ‘low’ quality, with the former being those funds that are above the 90th percentile of the distribution in terms of number of deals completed and the latter being those below this level. Startups backed by high quality VCs ended up with 32 per cent higher employment, compared to those funded by low quality VCs.⁴⁵⁴³ Moreover, the average patent stock of a startup backed by a high quality VC grew by almost 50-fold over the 10 years, versus 19-fold growth for those funded by low quality VCs.⁴⁵⁴⁴ In sum, Akcigit et al’s empirical work reaffirms that access to venture capitalist funding is a significant source of competitive advantage.

We now turn to the relevance of this bottleneck for tech startups in the BRICS context. The bottleneck is especially acute for new enterprises in Brazil, Russia, India and South Africa, where the VC industries, although growing, remain nascent. In 2018, VC investments in these jurisdictions amounted to just \$1.3bn,⁴⁵⁴⁵ \$1.2bn,⁴⁵⁴⁶ \$530m,⁴⁵⁴⁷ and \$250m,⁴⁵⁴⁸ respectively. That is, startups in these countries face significant financial barriers to entry because US-based VCs are less likely to invest in them and they do not have ready domestic alternatives. China, however, is an outlier among the BRICS.

Chinese startups enjoy a favourable financing landscape, benefitting from a well-developed VC sector and significant inflows from US VCs. The Chinese VC industry is the second largest worldwide, behind only the US.⁴⁵⁴⁹ The assets under management (AUM) of Chinese-based VC firms reached \$210 billion as of June 2018.⁴⁵⁵⁰ In 2018 Chinese startups received \$81 billion of VC funding, equal to 32 per cent of VC funding globally.⁴⁵⁵¹ Reinforcing the importance of the US VCs, American funds alone invested approximately \$19 billion into Chinese companies, participating in more than 330 funding rounds.⁴⁵⁵²

Table A.2.5. Top 10 VC Firms by Capital Raised in the Last 10 Years

Firm	Location	Capital Raised in Last 10 Years (\$ millions)
Tiger Global Management	New York, US	11,968
New Enterprise Associates	Menlo Park, US	8,230
Sequoia Capital	Menlo Park, US	7,865
DST Global	Central, Hong Kong	7,195

4543 *ibid*, 19.

4544 *ibid*, 17.

4545 McKinsey & Company, Brazil Digital Report (2019)

4546 DSight, Venture Russia 2018: Results (2019)

4547 Akshaya Asokan, ‘10 VC Firms Betting Big on Deep-Tech Focused Startups in India’ (20 May 2019).

4548 Partech, ‘2018 was a Monumental Year for African Tech Start-ups, with US\$ 1.163 Billion raised in equity funding, a 108% YoY Growth.’ (22 March 2019)

4549 As of 2017, there were 368 active VC managers in China, compared to 1199 in the US. The UK has the next highest amount, with 94. Preqin, 2018 Preqin Global Private Equity & Venture Capital Report (2018).

4550 US-China Investment Project, <https://www.us-china-fdi.com>

4551 Bain & Company, Global Private Equity Report 2019 (2019).

4552 US-China Investment Project, <https://www.us-china-fdi.com>

Firm	Location	Capital Raised in Last 10 Years (\$ millions)
Kleiner Perkins Caufield & Byers	Menlo Park, US	7,115
Andreessen Horowitz	Menlo Park, US	5,502
Accel Partners	Palo Alto, US	5,454
IDG Capital	Beijing, China	5,042
Index Ventures	London, UK	4,738
Lightspeed Venture Partners	Menlo Park, US	4,569

Source: Preqin, Preqin Special Report: The Venture Capital Top 100 (May 2017), 4.

Annex 3: Interim measures and commitment decision in select countries

Azza Raslan with BRICS teams

Country	Interim measure (Yes/No)	Criteria	Commitment decision/consent orders available (Yes/No)	Criteria
EU	Yes	<ul style="list-style-type: none"> Cases of urgency; Risk of serious and irreparable damage to competition; Prima facie finding of infringement. 	Yes	<ul style="list-style-type: none"> Not available to most serious violations that requires imposition of fine (cartels); Adequately address the identified competition concerns; Be unambiguous and self-executing.
UK	Yes	<ul style="list-style-type: none"> It is necessary for it to act... as a matter of urgency for the purpose of preventing significant damage. 	Yes	<ul style="list-style-type: none"> The CMA is likely to consider it appropriate to accept commitments only in cases where the competition concerns are readily identifiable, will be addressed by the commitments offered, and the proposed commitments can be implemented effectively and, if necessary, within a short period of time; The CMA is very unlikely to accept commitments in cases involving secret cartels between competitors or a serious abuse of a dominant position (Competition Act 1998: Guidance on the CMA's investigations).
France	Yes	<ul style="list-style-type: none"> When FCA considers that the practices complained of might infringe competition law and cause serious and immediate damage to competition or to a stakeholder in a sector. 	Yes	<ul style="list-style-type: none"> The practices concerned by the commitments decisions issued to date are mainly unilateral or vertical practices, which effect would likely be to restrict access to a market. Use of the commitments procedure has shown itself to be particularly suitable in the following situations: <ul style="list-style-type: none"> to reconcile competition law and intellectual property rights, for example, in the case of a refusal to allow access to rare resources; to ensure effective competition in markets undergoing liberalisation; in sectors characterized by technological or commercial changes, such as the development of internet sales.
US	Yes ⁴¹⁵⁶	<ul style="list-style-type: none"> TROs Proof of immediate and irreparable injury that will occur before the adverse party has a chance to oppose the motion Preliminary injunctions: (1) a substantial likelihood of success on the merits; (2) a substantial likelihood that failure to grant relief will cause irreparable injury for which monetary damages cannot substitute; 	Yes	<ul style="list-style-type: none"> The test for an acceptable negotiated settlement (commitment) is whether it addresses the anticompetitive conduct in a way that eliminates the harm and prevents its recurrence.

4553 Temporary restraining orders (TROs) and preliminary injunctions. While both the government and private parties can seek interim measures in civil cases

		<ul style="list-style-type: none"> • (3) the potential damage outweighs any harm that the injunction may cause to the opposing party; and (4) the injunction will promote the public interest. 		
Brazil	Yes	<ul style="list-style-type: none"> • Indication or reasoned concern that the defendant directly or indirectly causes or may cause irreparable or hardly repairable damages to the market, or make ineffective the final outcome of the process. 	Yes	<ul style="list-style-type: none"> • Available in in conduct cases ('cease-and-desist commitment') and within merger control.
Russia	Yes ⁴¹⁵⁷	<ul style="list-style-type: none"> • Failure to take these measures may obstruct or render impossible the execution of a judicial act, or they are necessary to prevent significant damage to an applicant. 	No ⁴¹⁵⁸	N/A
India	Yes	<ul style="list-style-type: none"> • CCI should establish (to much higher degree than prima facie case) that an act in contravention of provisions related with 'anti-competitive agreements' (S.3(1)), 'abuse of dominance' (S.4(1)) and 'combinations' (S.6) has been committed and continues to be committed or is about to be committed. • There is every likelihood (based on evidence presented) that the party would suffer irreparable and irretrievable damage, or there is definite apprehension that it would have adverse effect on competition in the market (Section 33 of the Competition Act, 2002; Competition Commission of India Vs Steel Authority of India Ltd. & Another). 	[No]	N/A
China	[Yes] ⁴¹⁵⁹	<ul style="list-style-type: none"> • In private litigations, plaintiffs are entitled to seek injunction reliefs or TROs under general civil procedure law provided the urgency and necessity were proved before a court. 	Yes	<ul style="list-style-type: none"> • According to Article 45 of the Antimonopoly law, with respect to the suspected monopolistic conduct which is under investigation by the authority for enforcement of the Anti-monopoly Law, if the undertakings under investigation commits themselves to adopt specific measures to eliminate the consequences of its conduct within a certain period of time which is accepted by the said authority, the authority for enforcement of the Anti-monopoly Law may decide to suspend the investigation. Further criteria are elaborated under Article 31 of the Interim Provisions for Prohibiting Abuse of Market Dominance and Article 22 of the Interim Provisions of Prohibiting Anticompetitive Agreements.

				They provide that when considering the application for investigation suspension, competition authorities should take account of the nature, time, effects, and social implications of the impugned conduct, as well as the remedies that the undertaking commits and the possible effects of these remedies. Article 22 of the Interim Provisions of Prohibiting Anticompetitive Agreements also provides that commitment decision should not be applied to agreements mentioned in Article 6, 7, 8, 9 of the Interim Provisions of Prohibiting Anticompetitive Agreements.
South Africa	Yes	<ul style="list-style-type: none"> The Competition Tribunal may grant an interim order if it is reasonable and just to do so, having regard to the following factors: 75 (i) The evidence relating to the alleged prohibited practice; (ii) the need to prevent serious or irreparable damage to the applicant; and (iii) the balance of convenience (article 49C of the Competition Act). 	Yes	<ul style="list-style-type: none"> Commitment Decision should address adequately the anticompetitive conduct and be 'as close as possible to that it would have achieved upon a successful prosecution of the matter in the [Competition] Tribunal' (Section 49D(1) of the Competition Act).

4554 Applied by courts, not NCA

4555 The settlement procedure maybe launched in the commercial court during appeal of the FAS's decision.

4556 In private litigations, plaintiffs are entitled to seek injunction reliefs or TROs under general civil procedure law provided the urgency and necessity were proved before a court.

Annex 4: New merger thresholds in Germany and Austria

Tobias Kleinschmit

1.1. Background of the Reform

The aim of the new provisions on transaction value thresholds, which were introduced in the area of merger control with the 9th amendment to the German Competition Act (Gesetz gegen Wettbewerbsbeschränkungen, GWB) and by the Austrian Cartel and Competition Law Amendment Act 2017 (Kartell- und Wettbewerbsrechts- Änderungsgesetz, KaWeRAG), is to adapt competition law to the structural change triggered by technical developments and international competition. Section 35 (1a) GWB and Section 9 (4) KartG introduced the criterion of merger considerations as an additional, subsidiary threshold for the notification requirement. As a result, mergers where companies or assets, which (as yet) generate little or no turnover, are purchased at a high price can now be examined under competition law. The aim of the threshold is to cover cases where current turnover and the purchase price for the company differ to a disproportionate extent. The high purchase price in such takeovers is often an indication of innovative business ideas with great competitive market potential. Market-leading companies are able to fully integrate emerging competitors or their assets into their own business by acquiring them in the early stage of their development and change or discontinue the original activities of the acquired company. From a competition policy perspective, such acquisitions may require a preventive merger investigation, especially with regard to protecting innovation potential and innovation competition in technology markets.

1.2. Modification of the German Competition Act⁴⁵⁵⁷

Originally § 35 para. 1 GWB states that:

„The provisions on the control of concentrations shall apply if in the last business year preceding the concentration

1. the combined aggregate worldwide turnover of all the undertakings concerned was more than EUR 500 million, and
2. the domestic turnover of at least one undertaking concerned was more than EUR 25 million and that of another undertaking concerned was more than EUR 5 million.“

⁴⁵⁵⁷ English Translation of the Act against Restraints of Competition provided by the Language Service of the Bundeskartellamt, available under http://www.gesetze-im-internet.de/englisch_gwb/englisch_gwb.html#p0339

The 9th amendment to the German Competition Act (Gesetz gegen Wettbewerbsbeschränkungen, GWB) added § 35 para 1a GWB, which states that

„The provisions on the control of concentrations shall also apply if

1. the requirements of paragraph 1 no. 1 are fulfilled,
2. in the last business year preceding the concentration
 - a) the domestic turnover of one undertaking concerned was more than EUR 25 million and
 - b) neither the target undertaking nor any other undertaking concerned achieved a domestic turnover of more than EUR 5 million,
3. the consideration for the acquisition exceeds EUR 400 million and
4. the target undertaking pursuant to no. 2 has substantial operations in Germany.“

1.3. Interpretation of the Provisions

Acknowledging that uncertainties persist, the German Federal Cartel Office (Bundeskartellamt) and the Austrian Federal Competition Authority (Bundeswettbewerbsbehörde) have published a Joint Guidance on the new transaction value thresholds.⁴⁵⁵⁸ This guidance paper is based on initial experience with the new thresholds, discussions with selected lawyers specialising in competition law and mergers and acquisitions and submissions received during the public consultation on a draft version of the guidance paper. The paper aims to offer users first assistance with interpreting statutory provisions and represents the current legal opinion of the Bundeskartellamt and the Bundeswettbewerbsbehörde on the applicability of the new provisions. However, it cannot bind the German and Austrian courts in their interpretation of Section 35 (1a) GWB or Section 9 (4) KartG. The Bundeswettbewerbsbehörde and the Bundeskartellamt especially respond to questions on the interpretation concerning the value of the consideration and the extent of domestic operations.

1.3.1. Value of the consideration within the meaning of Sec. 35 1a no. 3 GWB and Sec. 9 (4) KartG

1.3.1.1. Assets and monetary benefits included in the calculation

The value of consideration encompasses all assets and other monetary benefits that the seller receives from the buyer in connection with the merger in question. Considerations can consist of different items exchanged between buyer and seller in return for

⁴⁵⁵⁸ English Version of the Joint guidance on Transaction Value Thresholds for Mandatory Pre-merger Notification (Section 35 (1a) GWB and Section 9 (4) KartG) by the German Federal Cartel Office (Bundeskartellamt) and the Austrian Federal Competition Authority (Bundeswettbewerbsbehörde) is available under https://www.bwb.gv.at/fileadmin/user_upload/Downloads/standpunkte/2018-07_Guidance_Transaction_Value_Thresholds.pdf. The official version in German is available under https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Leitfaden/Leitfaden_Transaktionsschwelle.pdf?__blob=publicationFile&v=6

the acquisition of a target company. This can include cash, securities, company shares not traded as securities, other assets (real estate, tangible assets, current assets), intangible assets (licences, usage rights, rights to the company's name and trademark rights) and considerations for non-competition, for example. Considerations also include future and variable purchase price components whose amount and time of payment are contingent on the future development of certain company parameters or certain conditions. This covers earn-out payments, which depend on the development of corporate key figures, such as the EBIT, turnover or sales figures, for example. Also included are payments that are conditional on milestones agreed between the parties involved, such as the achievement of specific steps in a drug approval process, and future licence payments. Liabilities assumed by the buyer also form part of the consideration for the acquisition of a target company. In line with Mergers & Acquisitions (M & A) practice, the Bundeskartellamt and the Bundeswettbewerbsbehörde will usually add the interest-bearing portions of the liabilities to the value of the consideration.

The Joint Guide recommends different calculation methods depending on the nature of the consideration value in the specific case in question: (1) the consideration consists of cash, (2) the consideration consists of securities and (3) the consideration consists of assets other than securities or cash. Various combinations of these three case scenarios are also possible.⁴⁵⁵⁹

1.3.1.2. Relevant date for the value assessment

In contrast to a turnover analysis for a specific period of time, the value of the consideration has to be calculated for a specific point in time. The relevant factor determining whether a merger project has to be notified is the completion date of the merger. However, there may be cases where the value (of the consideration at the time of completion) has not been specified because of value fluctuations at the time of the notification. In this case, the value of the consideration submitted in the notification can relate to the time the notification requirement was reviewed by the parties to the merger. However, if the value falls below the €200m or €400m threshold after notification, the companies can withdraw their notification and complete their project without being subject to merger control. On the other hand, a merger project that was initially not subject to notification can become subject to notification, for example, if the price of the foreign currency or shares offered as a consideration rise to such an extent that they now exceed the thresholds. In these cases, an obligation to notify the merger may arise before the date of completion.

If various components of the consideration are to be paid at different times, the value of all subsequent payments, such as payments resulting from an earn-out arrangement, has to be determined with regard to the time of completion of the merger. This requires

⁴⁵⁵⁹ English Version of the Joint guidance on Transaction Value Thresholds for Mandatory Pre-merger Notification (Section 35 (1a) GWB and Section 9 (4) KartG) by the German Federal Cartel Office (Bundeskartellamt) and the Austrian Federal Competition Authority (Bundeswettbewerbsbehörde) available under https://www.bwb.gv.at/fileadmin/user_upload/Downloads/standpunkte/2018-07_Guidance_Transaction_Value_Thresholds.pdf

a particular degree of transparency to allow the calculated values to be verified. The current value of future payments at the time the notification requirement is reviewed must be calculated on the basis of discounting methods commonly used in the financial sector, such as those used in multi-period (or dynamic) capital budgeting. Future payments must be discounted to a cash value to calculate the value of the payments for a uniform date. Payments expected in the future can be uncertain in terms of their probability. If future payments have been weighted according to their probabilities in order to calculate their value, these probabilities and their underlying assumptions must be explained. If uncertainties have been taken into account by adding a premium on the discount rate, the amount of the relevant component must be specified and explained in the interest rate statement.

If the value of the consideration for a merger project was determined according to this guidance paper and the merger was considered exempt from notification as a result, the notification requirement will not be reinstated if the components of the consideration value that had already been taken into account change in value after the merger is put into effect. This may be the case if securities are exchanged, for example.

1.3.2. Substantial domestic operations

1.3.2.1. Domestic Operations

In accordance with Section 35 (1a) no. 4 GWB and Section 9 (4) KartG, these cases are subject to merger control if the company to be acquired, or significant parts of the company or assets to be acquired, have substantial operations in Germany or Austria. This is meant to eliminate cases from the scope of the provisions, which at their core relate to the takeover of a company only operating abroad.

The measurement of domestic activity requires an appropriate indicator to determine the extent to which the target company is operating on the domestic markets. In contrast to Section 35 (1) GWB and Section 9 (1) KartG, domestic activity is generally not measured on the basis of domestic turnover.

Different criteria to measure activities may be applied to different sectors and activities. A definitive list of possible criteria cannot be provided here. The measurement should be carried out in line with industry standards that cannot be easily manipulated. In the digital sector, the explanatory memoranda in Germany and Austria refer to user numbers ("monthly active users") or the access frequency of a website ("unique visitors") as examples of possible indicators. In proceedings of the Bundeskartellamt, other industry key figures, such as "daily active users" (DAU), have also been used.

Domestic activity must be a current activity. In contrast to the examination of turnover thresholds under Section 35 (1) and (1a) no. 2 GWB and Section 9 (1), (2) and (4) nos. 1 and 2 KartG, the point of reference is not the last full financial year preceding the merg

er but the target company's activity at the time the merger is put into effect. Future or anticipated activities are not sufficient.

1.3.2.2. Significance

Domestic activity within the meaning of Section 35 (1a) no. 4 GWB and Section 9 (4) no. 4 KartG must reach a significant level in addition to market orientation. The Bundeskartellamt will find that there is no significance if the target company generated a turnover below €5m in Germany and if this turnover adequately reflects its market position and competitive potential. This is likely to be the case if the company's products generate significant turnover abroad but not in Germany, for instance, because the company has not (yet) established a sales structure in Germany. In contrast to Germany, lawmakers in Austria have not set an absolute threshold of €5m. However, the Bundeswettbewerbshorde will routinely find that there is no domestic activity if the turnover of domestic target companies is below €500,000 provided that this turnover adequately reflects the market position and the competitive potential of the target company. The assessment of the degree of significance associated with the planned acquisition of research and development activities can be based on various conceivable criteria. These can include the number of staff engaged in research and development or the research and development budget, for example. The number of patents or patent citations can also be an indication. If a transaction primarily involves the acquisition of a domestic research site with sufficient domestic market orientation, it is safe to assume significant domestic activity.



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