

# Finanzplatz München Initiative



Prof. Dr. Rupprecht Podszun:

## Innovation, Variety & Fair Choice – New Rules for the Digital Economy

Expert Opinion for Finanzplatz München Initiative (fpmi)

München, Dezember 2017

This Expert Opinion was commissioned in 2017 by the Finanzplatz München Initiative (fpmi).

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## Executive Summary

### Characteristics of the Platform Economy

- (1) The **digitalisation has unleashed enormous potential**, reduced transaction costs, enhanced consumer welfare and inspired a new entrepreneurial culture. New technologies and business models lead to a far-reaching modernisation of business.
- (2) Notwithstanding the dynamics of digitalisation, the economy is at a turning point: Its fundamental infrastructure is being transformed. Some **platforms turn into gatekeepers of the market places** of the digital economy. Due to network effects, economies of scale and superior access to data, the success of such platforms becomes self-reinforcing. In a platform economy competition is for the market – not on the market. Markets may be “tipped” and are organised and governed by one or two platforms only.
- (3) In such markets, “the winner takes it all”. The platform operator determines the success of suppliers and customers and steers the coordination of supply and demand according to its own parameters. This has **elements of a centrally planned economy** and suppresses the discoveries of a free market economy when customers and/or suppliers are dependent upon the platform. The prerequisites of **innovation** – different paths, diversity, capacities for openness – may no longer be given.
- (4) Real providers of goods and services may become dependent from suppliers of auxiliary services (the match-making platforms). They battle for access to the platform and for the best conditions with the platform operator, but no longer for the customer directly. The direct **customer-supplier-interface gets lost**. Competition is pushed to the periphery. That is a strange distortion of the functioning of markets.
- (5) Consumers may benefit from reduced transaction costs first, but soon may be caught in closed systems where **consumer choice is reduced**. When switching costs are high and multi-homing is not possible, consumers are bound to one platform and may be subject to manipulation of choices and conditions by the platform operator without transparency. Consumers take fewer decisions themselves and take these decisions on a less informed basis.
- (6) The platform economy works with **data, algorithms and machine-learning**. Markets are more and more integrated and connected. The use of data and the delegation of decisions to machines may create barriers to entry and technological **lock-in effects**.

## Regulatory Responses

- (7) Regulatory responses to the platform economy need to protect **variety, innovation and fair choice** for consumers. This requires an approach that ensures that markets remain able to perform their function in selecting winners and losers in a dynamic competitive race. Whilst regulation and enforcement need to be cautious with a view to potential “**chilling effects**”, it is also necessary to **act quicker, more hands-on and more technology-sensitive** than so far.
- (8) The EU needs to develop a framework for the **governance of platforms**. Such a framework needs to distinguish between open platforms, proprietary systems and gatekeeping platforms. The framework needs to provide **rules for neutrality and interoperability, transparency and liability**.
- (9) **Competition law enforcement** needs to take centre stage in the governance of the digital economy. Artificially narrow market definitions should be replaced by an improved look at the integration of markets. The focus should shift to **innovation barriers and technological lock-in effects**. Jurisdiction for merger control needs to be reformed so as to encompass **shootout acquisitions** of innovative rival firms that challenge the market power of platforms. The 2017-amendments of the German Act against Restraints of Competition are a good starting point for reforms.
- (10) **Consumer awareness** in the digital economy needs to be strengthened. In particular, awareness for the non-neutrality of search results and for the use of data, algorithms and machine-learning could be enhanced or fostered through transparency requirements.
- (11) The **free flow of data** is a prerequisite for innovation and variety in the digital economy. **Interoperability** and open standards need to be supported. **An exclusive data right would be counterproductive** at present and would create artificial barriers for innovation. Instead it is necessary to design a **framework for access** to essential data. Such a framework should ensure data **portability** (also for machine-generated rights) and establish a speedy **ombudsman-system** for granting access and determining remuneration. It may be necessary to provide for sector-specific rules, e.g. default rules for data sharing contracts and sector-specific disclosure rules (e.g. for automated driving).

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## The Digital Economy at a Turning Point

Digitalisation changed the rules of the game in all sectors of the economy. Communication industries, media and providers of cultural content like publishers, music or film producers were the first to feel the transformation by digitalisation. With accelerating speed other sectors followed suit: Pharmaceutical and medical companies venture into e-health; car manufacturers work on automated driving; farming is nowadays driven more by data than by tractors. The first wave of digitalisation is completed. For the regulatory framework this means that a turning point has been reached: Rule makers still need to enable and foster digital developments, but they also need to keep an eye on the core mechanisms of the market economy. Innovation, variety and fair choice for consumers – usually guaranteed by competition – may be at risk if the framework for the digital economy does not keep up with the rising power of platforms.

In this chapter it is argued that the digital economy has come to a turning point after bringing so much dynamic into business. Chapter 2 names the three developments that are of utmost importance for our understanding of market economy: the rise of platforms, the use of data and the integration of markets. The effects of these developments are reinforced by the use of algorithms and artificial intelligence. Chapter 3 shows the costs of these developments. Companies lose their interface with the customer; consumers delegate ever more decisions; and the function of markets as a forum for the exchange of economic information and competition as the driver for the coordination of supply and demand are pushed aside. Chapter 4 puts future regulation into perspective so that principles and patterns that may underlie regulatory initiatives become visible. It also contains first recommendations. Finally, chapter 5 singles out one of the most pressing issues, access to data.

Even though public interest in digitalisation seems to peak, the digital revolution of the economy started years ago: The term “big data” was invented twenty years ago.<sup>1</sup> At about the same time, a reigning chess champion was for the first time beaten by “Deep Blue”, a machine.<sup>2</sup> In 1997, the domain google.com was registered. Apple’s iPhone was introduced ten years ago – actually 24 years after the presentation of the first mobile phone (weighing 2 kg). Digitalisation has been around, and while it continues with hurricane force in some areas, others have already settled.

Markets may reach turning points where the vitalising impact of innovation loses its grip and is superposed by stalemate effects and slowdowns. *Schumpeter’s* theory of creative destruction

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<sup>1</sup> Lohr, The Origins of ‘Big Data’: An Etymological Detective Story, in: The New York Times, 1.2.2013, <https://bits.blogs.nytimes.com/2013/02/01/the-origins-of-big-data-an-etymological-detective-story/>

<sup>2</sup> Weber, Swift and Slashin, Computer Topples Kasparov, in: The New York Times, 12.5.1997, <http://www.nytimes.com/1997/05/12/nyregion/swift-and-slashing-computer-topples-kasparov.html>

where innovations revitalise industries from within may hold true in the long-term, but has phases of stagnation nonetheless.<sup>3</sup> If such a turning point is reached – i.e. when a technology no longer works in favour of competition – economic regulation may set in.

Research has developed models to find such points in time on a micro and on a macro level: Innovation economists identify life cycles of products (micro level) and usually distinguish four phases: birth – growth – maturity – decline.<sup>4</sup> Economist *Ernst Heuß* developed a model of market phases (macro level) that builds on innovation lifecycles. He identified similar phases for markets: Experimental, expansion, maturity, stagnation and regression.<sup>5</sup> The elasticity of demand provides criteria for his model: When elasticity of demand is weakened, markets have reached a phase of maturity.

The first wave of digital technology has reached such a phase now.

- The market share of Google for search services has been steadily above 70 % in Germany since 2003 and around 90 % since 2007.<sup>6</sup> This is no longer an experimental or expansive market phase.
- With 271 million smartphone users in Western Europe in 2018,<sup>7</sup> it is hard to imagine further continuous growth in this segment. In most Member States mobile communication is now run by three or four competing providers – a significant concentration and consolidation took place.<sup>8</sup>

Markets in different phases of their development show different competitive problems – and need different answers from competition authorities.<sup>9</sup> Now, with digital markets maturing concentration rises, entry barriers are high, customers may be locked-in. The regulatory task now is to keep markets open.

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<sup>3</sup> Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (1994), p. 139. Cf. Franco Malerba/Luigi Orsenigo, Schumpeterian patterns of innovation, 19 *Cambridge Journal of Economics*, 47 (1995).

<sup>4</sup> Cf. Philip Kotler/Kevin L. Keller, *Marketing Management*, 1967, 14th ed., 2012, pp. 332 ff.

<sup>5</sup> Ernst Heuß, *Allgemeine Markttheorie*, 1965, p. 25 ff. Also cf. Uwe Cantner/Horst Hanusch, *Industrie-Evolution*, Working Paper 1998, for an evolutionary view on the patterns of industry development, available at <https://www.econstor.eu/bitstream/10419/70070/2/380881519.pdf>; Franco Malerba/Luigi Orsenigo, *The Dynamics and Evolution of Industries*, 5 *Industrial and Corporate Change* 51 (1996).

<sup>6</sup> See <https://seo-summary.de/suchmaschinen/>.

<sup>7</sup> <https://www.statista.com/statistics/494554/smartphone-users-in-western-europe/>.

<sup>8</sup> See for further information Luca Manigrassi, Eleonora Ocello, Violeta Staykova, *Recent developments in telecoms mergers*, European Commission Competition Merger Brief No 3/2016, <http://ec.europa.eu/competition/publications/cmb/2016/kdal16003enn.pdf>

<sup>9</sup> Ernst Heuß, *Allgemeine Markttheorie*, 1965, pp. 25 ff.; cf. Martina Eckardt, *Technischer Wandel und Rechtsevolution*, 2001, p. 81.

With digitalisation transforming the economy for years now, it is time to change from a hands-off approach to building a framework that ensures that the benefits of digitalisation are passed on to consumers.<sup>10</sup> This requires an update of legal rules from a pre-digital era.

Law-makers all over Europe work on concepts for the digital economy coming from different angles.<sup>11</sup> This paper starts from the perspective of competition policy and focusses on the rise of gatekeeping platforms. Since competition is the core mechanism of the market economy, it is the aim here to address the paradigm shifts for the market economy. These shifts need to be addressed with straightforwardness and dedication.

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<sup>10</sup> This seems to be the position of the German Federal Ministry for Economic Affairs and Energy, cf. White Paper Digital Platforms: Digital regulatory policy for growth, innovation, competition and participation, 2017, <https://www.bmwi.de/Redaktion/EN/Publikationen/white-paper.html>

<sup>11</sup> Cf. summary of EU legislation on information technology, [http://eur-lex.europa.eu/summary/chapter/information\\_society.html?root\\_default=SUM\\_1\\_CODED%3D31&locale=en](http://eur-lex.europa.eu/summary/chapter/information_society.html?root_default=SUM_1_CODED%3D31&locale=en)

## Paradigmatic Changes

In this chapter, paradigm shifts in the functioning of the market economy are identified. Three issues stand out: the rise of platforms, the use of data and the integration of markets. Where digitalisation has already transformed sectors completely, these are the most radical deviations from classic markets. The growing use of algorithms and artificial intelligence intensifies these deviations.

### 2.1 The Rise of Platforms

Many markets have been transformed to platform markets. A platform market is a market where the operator of a platform brings together potential customers and potential suppliers and offers the service of connecting the two, sometimes together with further services. Platforms are successful if the platform matches supply and demand in the best possible way and reduces transaction costs. The use of data and algorithms is necessary to achieve this task.

#### *Functioning of Platforms*

A traditional platform market is the credit card business: The credit card operator connects merchants that want to sell goods and customers that want to buy goods. In particular, the credit card operator solves the problem of credit for the cardholder by extending this credit. The company usually profits from dues collected from either of the two sides.<sup>12</sup>

Obviously, the acceptance of a platform depends upon its ability to connect a sufficient number of participants on each side of the platform: The more merchants accept a credit card, the more attractive this credit card becomes for customers. The more customers use a specific credit card, the more attractive acceptance of this credit card becomes for merchants. This interplay is known as an indirect network effect: The value of the platform is strengthened with more users on the other side of the platform. Direct network effects are given when more users on the same side of the platform enhance the value of the platform. This is, for instance, the case with social media platforms such as Facebook: The more consumers use Facebook, the more attractive it becomes for these users. Indirect network effects make Facebook more attractive for customers that want to advertise: The more users (and the more user data) the more targeted advertising can be. Facebook users do not necessarily profit in the same way from these indirect network effects.

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<sup>12</sup> Cf. J Gregory Sidak/Robert D Willig, „Two-Sided Market Definition and Competitive Effects for Credit Cards After United States v. American Express“, (1) The Criterion Journal 1301, 1303 [2016].

The mechanisms of network effects and platforms have been analysed in seminal papers by Nobel Prize winner *Jean Tirole* and other economists.<sup>13</sup> *Jean-Charles Rochet* and *Tirole* highlighted how platforms work with different pricing schemes to court users on the one side (subsidised segment) and to make money on the other side (profit-making segment). One substantial contribution of *Tirole's* research was to identify governance schemes that have different outcomes for the platform operator.<sup>14</sup> So, the design of the platform, the “governance” executed by the platform operator has a significant impact. The first problem that has to be overcome is, obviously, to attract enough users to make the platform attractive at all. This is usually done by subsidies for one market side.

For *Tirole*, most markets are two- or more-sided so that network externalities exist and platforms can work their magic of matching different groups.<sup>15</sup> Digitalisation has accelerated the use of platform business models since the matching process works much faster and better with more exact data.

Successful platform operators are, for example, eBay, Airbnb, Amazon Marketplace, Delivery Hero or Uber. They connect users and suppliers. A special feature of these platforms is that the suppliers are often small companies (like Uber drivers – if they are independent economic entities at all and not workers)<sup>16</sup> that find access to customers through this business model and had not been part of the market before (as is obvious with Airbnb-hosts or restaurants that were not able to establish their own delivery service).

### *The Bigger, the Better?*

Since platforms work with network effects there is a tendency that bigger platforms, more successful platforms reach a spiralling effect of becoming ever more successful.<sup>17</sup> At a certain point this success becomes self-reinforcing, partly independent of performance or innovation: Network effects may become so important that they beat other aspects of the platform. It does not make sense to communicate on a communication platform like Threema if everyone communi-

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<sup>13</sup> For example Jean-Charles Rochet/Jean Tirole, Platform Competition in Two-Sided Markets, 1(4) Journal of the European Economic Association, 990 ff. [2003]; Jean-Charles Rochet/Jean Tirole, Two-Sided Markets : A Progress Report, 37 Rand Journal of Economics 645 [2006] ; David S. Evans, The Antitrust Economics of Multi-Sided Platform Markets, 20 Yale Journal on Regulation 325 [2003].

<sup>14</sup> Cf. Jean-Charles Rochet/Jean Tirole, Platform Competition in Two-Sided Markets, 1(4) Journal of the European Economic Association, 990, 993 [2003].

<sup>15</sup> On matching markets cf. Alvin Roth, Who gets what and why?, 2015.

<sup>16</sup> Cf. the judgment of the UK Employment Tribunal, 28.10.2016, Mr Y Aslam, Mr J Farrar and others v Uber BV, Uber London Ltd & Uber Britannia Ltd, Cases 2202551/2015 and others, available at <https://www.judiciary.gov.uk/wp-content/uploads/2016/10/aslam-and-farrar-v-uber-reasons-20161028.pdf>.

<sup>17</sup> See Ariel Ezrachi/Maurice E. Stucke, Virtual Competition, 2016, p. 174.

cates on WhatsApp. Access to the other participants is of paramount importance, and thus sheer size matters. Success overtakes the merits of platform design. The business models of platform operators are designed to work with economies of scale. Marginal costs are particularly low, so that more users on one side of the platform do not necessitate investments.

Yet, a successful platform is not necessarily a monopoly; even though the customer base may amount to something similar to an essential infrastructure, two other factors need to be born in mind: multi-homing and switching costs.

Multi-homing means the possibility to be active on several competing platforms.<sup>18</sup> For instance, a consumer looking for a new partner may use several dating platforms in parallel. Similarly, users may communicate via WhatsApp, but may also use iMessage, Threema and WeChat as well. Whether multi-homing actually happens depends on different factors. For instance, some customers may be exclusively bound to one platform. Such exclusivity requirements are typical for operating systems on mobile phones: Neither technically nor legally is it possible to operate a specific mobile phone with two competing operating systems. Such requirements may also come from legal arrangements, e.g. when providers of apps are bound exclusively to one platform, or, more sophisticated, if rebate schemes, best price clauses or other restrictions incentivise users to stay with one platform exclusively.

Switching costs refer to the costs of switching from one platform to another.<sup>19</sup> This can be very easy or very burdensome. For instance, it may be easy for a user to open a new account with a dating platform where the aim is to find new relationships. It may be very difficult, however, to move all contacts from Facebook to another social network if all contacts, postings, contributions, chats etc. needed to be transferred. For companies, ratings on a platform may be an asset that they do find too costly to lose before establishing on another platform. If companies have bound their production or service to one platform, it may be particularly costly to switch to another platform. So, switching costs are decisive for the endurance of a platform.

Switching costs may easily be aggravated by technical measures or incentives to stay that are difficult to calculate – switching always requires some form of action that may be costly, or simply inconvenient. Thus, network effects are often more stable than it seems at first sight.

Network effects working on digital platforms have an in-built tendency to monopolisation. Even though there are platforms that are not exclusive, where switching costs are low or multi-

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<sup>18</sup> Attila Ambrus /Rossella Argenziano, Asymmetric networks in two-sided markets, 1 (1) American Economic Journal: Microeconomics 17, 29 [2009].

<sup>19</sup> OECD, The Digital Economy, 2012, p. 9, available at: <http://www.oecd.org/daf/competition/The-Digital-Economy-2012.pdf>.

homing is easy, many platforms tend to tip markets (see below). If the platform operator manages to court customers onto the platform in such considerable size that size starts to become a self-fulfilling prophecy (i.e. as long as transaction costs are lowered) it will be efficient for customers to tie themselves to one platform.

### *“Super-platforms”*

*Ariel Ezrachi* and *Maurice Stucke* worked on platforms from a competition law perspective in their seminal book “Virtual Competition”.<sup>20</sup> In their view, the “big five” of the Internet age (Microsoft, Apple, Facebook, Amazon and Google, in short: MAGAF) have become “super platforms” that are no longer subject to substantial or potential competition and that are essential for anyone doing business. In the words of the Wall Street Journal, “anyone building a brand, for example, can’t ignore Facebook’s highly engaged audience of 1 billion. Anyone starting a business needs to make sure they can be found on Google.”<sup>21</sup> The companies managed to grow into key roles of the economy: Facebook for social interaction and identity management, Google for search which really is access to the online world, Amazon for retail. Apple, Microsoft and Google (with Android) control operating systems that are highly influential and place the companies into the control centre of the digital environment for the individual that logs into one of these operating systems.

Since more and more economic decisions are taken online, from banking to shopping, from distant learning to dating, these undertakings control the gateway of individuals to do business. So, super-platforms have become gatekeepers – success in business depends on access to these platforms. Gatekeeping is not confined to the MAGAF firms. Other platforms, e.g. B2B-platforms for industry spare parts, may grow into this role as well, depending on their network effects and their aggressiveness in rolling out their business model.

Platforms can nudge users or influence them in other ways so as to use specific services or buy certain goods.<sup>22</sup> Through access to all sorts of data (including calendars, e-mails, messaging or networks) these platforms know their users perfectly and are able to act in the most targeted manner.

The super-platforms may depend on one another (e.g. Google paid \$ 1 billion to Apple to be the pre-installed search engine on the iPhone); yet independent third companies and consumers do

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<sup>20</sup> Ariel Ezrachi/Maurice E. Stucke, *Virtual Competition*, 2016, pp. 145 ff.

<sup>21</sup> Don Clark / Robert McMillan, “Facebook, Amazon and Other Tech Giants Tighten Grip on Internet Economy”, *Wall Street Journal*, 5.11.2015.

<sup>22</sup> Ariel Ezrachi/Maurice E. Stucke, *Virtual Competition*, 2016, p. 152.

not wield countervailing power to influence the decisions of these firms. Governance issues stemming from the control of the “bottleneck” or the role as a “gatekeeper” may arise.

Building platforms is the first pillar of a strategy to make certain companies immune against competition or other threats to power – and to transform the economy into a platform-driven economy.

## 2.2 Use of Data

The second pillar of the digital economy that transforms the fundamental working mechanisms of markets is the exploding use of data.

Data means any kind of information.<sup>23</sup> Data may come in the form of personal data stemming from the private sphere of individuals. These data are often in the focus of public debate. For industries, other data become equally important: machine-generated data that is not necessarily personalised but helps to work machines or is an important feature for the business cycle, particularly in the Internet of Things.<sup>24</sup>

Of course, data has been used for business all the time, yet a systematic, real-time exploitation of data has only become possible with the digital revolutions of the past years. Data can now be collected, transmitted, processed and exploited in much easier ways than before and much quicker than before and with much more sophistication than before.

The value of data for the economy is that they allow a precise understanding and catering to customer demand and allow matching processes that reduce transaction costs to a considerable degree. Market actors that take decisions are no longer dependent upon informed guesses or entrepreneurial intuition when deciding but can base these decisions – which are at the core of market processes – with solid data. The use of data has swept markets in many ways: through new business models, greater transparency (e.g. through price crawlers), as a currency,<sup>25</sup> and as a tool to connect different products and services.

This latter point is most important for the change of economic dynamics: Data delivers a digitised and therefore computable version of reality.<sup>26</sup> Thus, more and more products and services

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<sup>23</sup> Cf. Cambridge Dictionary.

<sup>24</sup> <https://www.forbes.com/sites/janakirammsv/2017/08/27/how-machine-learning-enhances-the-value-of-industrial-internet-of-things/#3beee3733f38>.

<sup>25</sup> Carmen Langanke / Martin Schmidt-Kessel, Data as Consideration, 1 (6) EuCML, 218 [2015].

<sup>26</sup> Painting “a portrait of our daily activities” as put by Maurice E. Stucke/Allen P. Grunes, Big Data and Competition Policy, 2016, 4.33.

may be connected (as in automated driving, smart homes, healthcare and in the respective production lines for these products). Data becomes a crucial input. Often, data is compared to commodities like crude oil.<sup>27</sup> Without access to data, a company's products cannot fit into the value chain.

“Big Data” is a term used for signalling the importance and dimension of the use of data.<sup>28</sup> It often characterises the combination of data from different sources so that correlations become visible and information are refined, e.g. when address data of customers are combined with data about living standards in that neighbourhood, data about personal preferences of the customer and the weather. There is no uniform definition of big data. Data has become “big” in four dimensions:<sup>29</sup> the volume of data has increased significantly. The velocity of data, the pace of collecting data, has been accelerated. The variety of data has increased dramatically with data coming from all sorts of spheres. Finally, the value of data as such has reached new dimensions. The four V (volume, velocity, variety, value) stand for the massive increase of the importance of data for the economy. As the OECD put it in a report in 2013: “Big data now represents a core economic asset that can create significant competitive advantage for firms and drive innovation and growth.”<sup>30</sup>

Data are generated permanently through various means, and there are indications that the principles of data avoidance and minimisation that were established with the Data Protection Directive<sup>31</sup> have practically lost their value.

The legal framework for data focussed on privacy issues. The most visible act is the General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679) that takes effect as of 25 May 2018. The most interesting rule in the GDPR is Art. 20, granting a right to data portability:

“The data subject shall have the right to receive the personal data concerning him or her (...) in a structured, commonly used and machine-readable format and have the right to transmit those data to another controller without hindrance (...).”

This portability rule shall make it easier to move from one provider to another, thereby reducing switching costs (which otherwise make competition impossible). For instance, the user of an e-health-platform has the right to transfer the personal health data to a competing platform. The

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<sup>27</sup> Cf. Regulating the data economy, *The Economist* [May 6<sup>th</sup> 2017].

<sup>28</sup> Cf. McKinsey Global Institute, *Big data: The next frontier for innovation, competition and productivity*, 2011, available at: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/big-data-the-next-frontier-for-innovation>.

<sup>29</sup> Maurice E. Stucke / Allen P. Grunes, *Big Data and Competition Policy*, 2016, 2.01 ff.

<sup>30</sup> OECD, *Supporting Investment in Knowledge Capital, Growth and Innovation*, 10.10. 2013, p. 319. Cf. OECD, *Data-driven Innovation*.

<sup>31</sup> Cf. Art. 6(1)(c) Data Protection Directive 95/46/EC.

effectiveness of such a right remains to be tested in practice. If portability does not work, customers lose their choices. On the flipside of that are companies that do not have access to crucial data: they are out, and thus markets may lose variety and innovations.

Gatekeeping platform operators profit most from the use of data since they usually have a central role in collecting data. They can work with economies of scale, spill-over effects and network effects of data to a considerable degree. For instance, if Amazon makes 30 % of its sales from recommendations, i.e. predictions what suits a customer's preference, it is vital to have many customer data on buying preferences so that recommendations can be targeted.<sup>32</sup> The success of reputation systems (e.g. in travel platforms), search engines or other recommendation sites is based on the exploitation of data. It is not just the scale of data, but also the scope of data and spill-over effects that are of relevance.<sup>33</sup> A company that operates a platform, e.g. an Internet of Things platform that connects different devices, applications and services, profits most from getting to know the different formats, requirements, volumes etc. of customers on all sides of the platform. Based on data, the platform can design a governance scheme that perfectly exploits customers for the benefit of the platform.

Summing up the changes for the working mechanisms of markets from big data, three issues stand out: Firstly, with the digital economy, data becomes a key input in all sectors equivalent to commodities or financial means – or even more far-reaching: it provides a computable version of reality. Secondly, market operations can be much better targeted and become quicker. This means that the coordination of supply and demand is more efficient, but also more dependent upon data, and less dependent upon individual decisions. Thirdly, big data is biggest with gatekeepers that collect data from different players in the market. Here, network effects and other spiralling effects contribute to strengthening their position.

### **2.3 Integration of Markets**

A third fundamental change to the economy, apart from the rise of platforms and data, is the integration of markets. More and more products and services are connected (with the help of platforms and data). Companies no longer try to sell single products or services but whole “architectures” or “ecosystems”.

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<sup>32</sup> Cf. McKinsey Global Institute, *Big Data: The Next Frontier for Innovation, Competition, and Productivity*, 2011, p. 23.

<sup>33</sup> Maurice E. Stucke/Allen P. Grunes, *Big Data and Competition Policy*, 2016, p. 186 ff.

## *Smart Products, Intelligent Ecosystems*

The idea of integrating markets is to connect markets that in former times were completely independent and thereby raise switching costs for consumers and broaden the own profit base.<sup>34</sup> An example may be the heating in a building that is turned into a smart component by adding a monitoring device (smart metering) that is connected to a cloud. For product markets, “smart” products can be characterised as combining hardware (a physical element), “smart” elements (sensors and processors) and connectivity components, transmitting data to other products, a platform or service providers.<sup>35</sup>

Smart devices are interconnected with others to perform several functions that in former time were outsourced to external providers: A smart product can monitor usage, conditions or external environment; it can control functionalities; it can optimise the product’s use by personalising for the specific user, enhancing the performance, informing about status, service necessities or repairs. Finally, the product can perform further functions on its own that open up new strands of action, e.g. autonomous operation of the product, downloading new software with new tools, ordering of repair or spare parts, self-autonomous decisions about further use, etc. There is a whole “architecture” built around the product.<sup>36</sup>

Taking up the example of the heating the smart device may check the energy consumption, the working of the heating, it may register the temperature and regulate it according to weather data, it may automatically inform the repair service if service is needed and may on its own account download information for climate-friendly heating that is personalised for the user. In the hands of the right data analyst, the smart device may also tell a lot about the habits of the people living in the building or their preferences, thereby becoming a valuable source of information for advertising or other fields of business.

This product connects to other products, and the smart architecture of the heating is integrated into a larger ecosystem of smart products, e.g. a smart home where several such smart products are used, communicate with each other, start feedback-processes and enhance or enlarge the ecosystem as such. This requires the transformation of different data and communication processes, which is usually done through the cloud operator. The user of that building may just have a central switch to turn the smart building “on”, but the user may no longer have an overview or

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<sup>34</sup> Michael E. Porter/James E. Heppelman, How Smart, Connected Products are Transforming Companies, 89 (11) Harvard Business Review 65, 73 [2014].

<sup>35</sup> Michael E. Porter/James E. Heppelman, 89 (11) Harvard Business Review 65, 67 [2014].

<sup>36</sup> Michael E. Porter/James E. Heppelman, 89 (11) Harvard Business Review 65, 69 ff. [2014].

take individual decisions on issues that formed separate business cases before. This is mirrored for the companies involved that are now part of an ecosystem instead of distinct markets.

### *Lock-in into Ecosystems*

More and more, customers enter into ecosystems where one decision in favour of a product necessarily means the decision in favour of several follow-up products. This is most obvious for consumers with mobile phone environments. The decision to buy a specific mobile phone, e.g. an iPhone, entails the decision to use a certain operating system (iOS), browser (Safari), personal assistant (Siri) and a set of apps that is available within this ecosystem. There is also a strong incentive to use connected location services (Maps), media services (iTunes), cloud operators (iCloud), a fitness and health app (Health) and other Apple products like Macbooks or the Apple Watch. It should be born in mind that the smartphone for many users, and in particular the next generation, is the gateway to the world or at least to the business world.

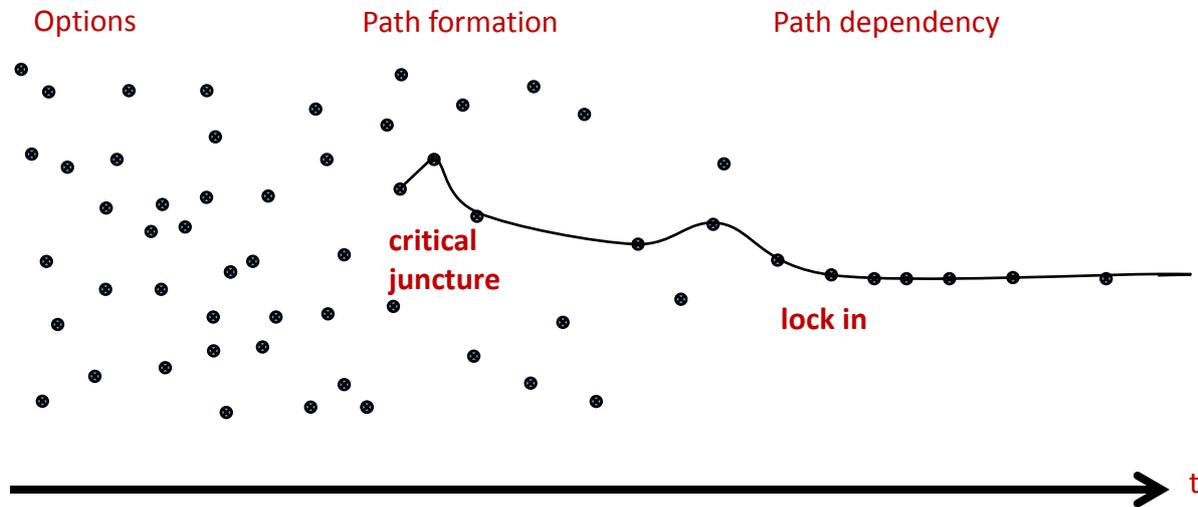
For customers, ecosystems may lead to lock-in effects: The decision in favour of one ecosystem means that a large number of follow-on decisions is already taken and no control is exerted in this realm. This does not just concern the product as such (regarding display, camera, battery, processor, standards or interfaces used) but also all products within the ecosystem, from apps to further devices. 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. Apple, the company, is in a central controlling position and steers several markets that are closely connected and integrated.

Institutional economics characterise such situations as situations of path dependence.<sup>37</sup> This term characterises the process that is started with a decision in favour of one specific option. Typically, path dependence highlights the fact that the first decision for one option has an enormous impact at a later stage since it paves the path to take: other options are excluded and with each further step it becomes more and more difficult to change to another path. When a critical

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<sup>37</sup> Cf. Douglass C. North, *Economic Performance Through Time*, 84 *American Economic Review* 359 (1994); Stan J. Liebowitz/Stephen E. Margolis, *Path Dependence, Lock-In, and History*, 11 *Journal of Law, Economics and Organization*, 205 (1995); Leonhard Dobusch/Elke Schüßler, *Theorizing path dependence: a review of positive feedback mechanisms in technology markets, regional clusters and organizations*, 22 *Industrial and Corporate Change*, 617 (2013).

juncture has been taken the person is “locked-in” into the path chosen. Such lock-in effects make competition and free decisions on markets impossible.<sup>38</sup> The table illustrates this pattern.



Companies work on the design of early decisions so as to get customers onto a path and lock them into the ecosystem. While a consumer has several options and strong competition when deciding what smartphone to buy, the decision in favour of one smartphone is the critical juncture where the lock-in effect starts: Switching costs from one mobile phone to another are very high, and it is technically impossible to break from the path chosen. The result is that the decision in favour of one specific brand also leads to the result that a certain fitness app is the most convenient choice, which in effect, means that a certain healthcare provider or an insurance company that may be an exclusive partner of that fitness app is in the pole position for the user of that smartphone. In short: Entering into a smartphone contract may be the decisive step for a health insurance contract at a later stage – if the insurance company managed to buy into the ecosystem and if lock-in effects are strong enough. Customer’s choice is reduced.

### *Supply-side Perspective*

Building ecosystems means to blur the boundaries of traditional markets. Markets are connected; products and services can no longer be thought of without their digital interface and thus their integration into ecosystems. The success story of this integration of markets in ecosystems

<sup>38</sup> Cf. Joseph Farrell/Paul Klemperer, Coordination and Lock-In: Competition with Switching Costs and Network Effects, in M. Armstrong/R. Porter (eds), Handbook of Industrial Organization, Vol 3, p. 1967 (2007).

is taken to ever larger scales with global value chains that have one point of access for the end consumer but integrate a larger number of suppliers on the chain than before.<sup>39</sup>

The smartphone example above comes from the consumer realm. It may easily be transferred to the Internet of Things where such ecosystems are now established, connecting B2B. This opens the field for the supply-side perspective: As with platforms, the integration of markets may mean that companies need access to the ecosystem. Their interface to other businesses means that they can no longer command their product independently, but are integrated into a value chain and may become suppliers to others in the traditional sense. The stronger the ecosystem is the easier it will be to attract suppliers “like a coral reef”.<sup>40</sup>

Two examples may illustrate how an integration of markets changes the business model of established companies:

Smart washing machines feature sensors and digital devices. The necessary doses of washing powder are added automatically from the machine. The machine also notices when it runs out of stock and it may order washing powder automatically from an online shop (that may be run by the supplier of the washing machine). If this business model prevails, the role of the producers of a very traditional consumer good is degraded: Washing powder will no longer feature prominently on shelves in shops, the decisive contracts are entered into with producers of washing machines or the operators of marketplaces – not with consumers. This will radically change the business model of washing powder suppliers. The markets for washing machines and washing powder are integrated.

The European Commission reviewed another example where two completely distinct markets are merged into one under its merger control regime: the joint venture of Sanofi and Google in diabetes. In 2016, the leading pharmaceutical company Sanofi and Google notified their joint venture to the European Commission under the Merger Control Regulation. They aim at building an e-health-platform for diabetes patients. The necessary insulin equipment (provided by Sanofi) is digitised and transfers data to a platform operated by Google where the medical data of the patient are tracked, monitored, analysed. This may improve the treatment of the diabetic. The data will be pooled with data from other diabetics. Network effects will play a role. Sanofi is strong in the business of diabetes treatment. Google is strong in data analytics and related fields. The European Commission did not see an impediment of effective competition when these two leaders in their fields joined forces. The Commission also refuted the argument that customers may be bound to the platform (and thus to the two companies). Art. 20 of the General Data Pro-

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<sup>39</sup> Cf. Koen de Backer/Sébastien Miroudout, OECD Trade Policy Paper 159: Mapping Global Value Chains (2013).

<sup>40</sup> Ariel Ezrachi / Maurice E. Stucke, Virtual Competition, 2016, p. 149.

tection Regulation, so the Commission argued, would give customers a right to portability of their personal data.<sup>41</sup>

Three aspects of this case are striking: Firstly, it is the integration of two markets – healthcare for diabetics and data analytics – that had no connection before, but where two independent and successful companies now cooperate. Secondly, it is stunning that the Commission relies on the data portability rule as a remedy to a potential lock-in effect. Whether this works in practice remains to be seen: Customers will have a status quo bias, network effects will be strong, and there may be subtle tools to bind customers to the platform. Thirdly, the case is an eye-opener for the shift in access to customers: Up to now, a person suffering of diabetes was completely dependent upon Sanofi or competitors of Sanofi, providing the necessary medicine and the equipment. In the future, this person will probably feel more attached to the platform and will be more dependent on its personal data history there. Sanofi may lose the customer interface, and the platform operator may be in a stronger position vis-à-vis the customer than Sanofi.

According to *Michael Porter* and *James Heppelmann*, the integration of markets prompts the question for undertakings: “What business am I in?”<sup>42</sup> The classical boundaries of competition are blurred. Instead products and services become more complex and other players than before enter into markets, adding the “smartness”, data or connections.

The integration of markets through ecosystems, smart products and architectures built around such products and services changes the economics at play in three regards:

Firstly, customers often decide in favour of an ecosystem, thereby locking themselves into a path that can hardly be left. The path dependency of the initial choice is hardly acknowledged in full.

Secondly, companies are forced to establish themselves in a value chain. Their role may move from being an independent, important market actor to becoming an interchangeable supplier in a global value chain without direct contact to customers.

Thirdly, markets are integrated in their product dimension as well as geographically. From a macroeconomic perspective, it becomes more difficult to identify competition and to “regulate” distinct markets. Regulatory decisions need to address ecosystems and value chains, not narrowly defined “markets” in the traditional sense.

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<sup>41</sup> Cf. the information contained in the Commission decision, European Commission, 23.2.20216, Case M.7813 – *Sanofi/Google*.

<sup>42</sup> Michael E. Porter/James E. Heppelman, 89 (11) Harvard Business Review 65, 66 [2014].

## 2.4 Use of Algorithms and Artificial Intelligence

The three developments highlighted so far – platforms, data, integrated markets – find an accelerator and intensifier in the use of algorithms and artificial intelligence (AI).

An Algorithm is a sequence of formal instructions how to solve a problem or compute a function.<sup>43</sup> Their basis is digitized information (data) and a programming. Running the programmes, i.e. setting the algorithms at work, means that solutions to problems are at hand within moments. The procedure may be automatic, self-executing. Algorithms as such may still be seen as performing a function that had been started by a decision made by a human. Yet, this concept loses ground with the rise of AI. AI means that programmes are able to learn for themselves and to devise new problems, solutions and functions. Alternative use has been made of terms like “machine learning” or “smart autonomous robots”.<sup>44</sup>

The power of algorithms lies in the speed, accuracy and automatisisation of choices. The power of AI lies in the surprise of thinking. Together, algorithms and AI change the process that formerly was seen as the decision-making process in business.

First commentators on the issue from a competition policy perspective notice a change in decision-making:

“We are standing on the verge of a brand-new world with respect to how we buy and sell. Roles that for centuries have been performed by humans will soon be transferred to algorithms. This change is inevitable, given technological developments that give algorithmic consumers strong comparative advantages over human consumers in some decision-making processes. These trends are intensified by the rise of the Internet of Things. (...) When computer code determines important transactions, some of the assumptions on which current regulation is based must be revisited.”<sup>45</sup>

The background to this perception is that markets are about coordinating decisions of individuals. When these decisions are no longer taken by individuals in an autonomous way, but by machines, the market may lose its key actor. The delegation of decisions on preferences or economic parameters to automated processes, based on data, may be detrimental for variety and con-

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<sup>43</sup> For a more detailed analysis of the concept of algorithms cf. OECD, Algorithms and Collusion – Background Note, 9.6.2017, DAF/COMP(2017)4, pp. 6 ff.

<sup>44</sup> Cf. European Parliament, Directorate-General for Internal Policies, European Civil Law Rules in Robotics, October 2016, p. 8, available at [http://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL\\_STU\(2016\)571379\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf).

<sup>45</sup> Michal Gal / Niva Elkin-Koren, “Algorithmic Consumers”, 30 Harvard Journal of Law & Technology, 2, 1, 44 [Spring 2017].

sumer choice in the long run. The OECD Secretariat has acknowledged risks in this regard, yet argues in favour of a very cautious regulatory approach.<sup>46</sup>

A particularly powerful tool in this process are digital assistants like Amazon's Echo with Alexa. The voice-operated device adapts the preferences and acts accordingly. Choices are strongly guided. Processes are not transparent enough to make consumers aware of the reduction of choice through such means. Behavioural traits like default biases may strengthen these tools. Andreas Mundt, President of the German Competition Authority, believes that this may change the competitive environment more than other developments of the digital age.<sup>47</sup> Digital assistants may serve as another gatekeeper in the future, and it does not come as a surprise that these little helpers come from platform operators. They reinforce the architecture of the ecosystem.

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<sup>46</sup> The Directorate particularly looked at the risk of collusive behaviour by companies due to the high transparency in markets, cf. OECD, Algorithms and Collusion – Background Note, 9.6.2017, DAF/COMP(2017)4, p. 50.

<sup>47</sup> According to Wirtschaftswoche, 14.7.2017, available (in German) at <http://www.wiwo.de/unternehmen/it/kartellamtschef-mundt-amazons-alexa-womoeglich-ein-problem/20056116.html>.

## Challenges for the Market Economy

The paradigmatic changes identified before have unleashed enormous potential. Transaction costs were reduced, consumer welfare was enhanced through new products and lower prices, a new entrepreneurial culture has been inspired. Business has seen a far-reaching modernisation, and the economy may profit from digitalisation (even though it has been noted critically that there is no evidence for growth in productivity)<sup>48</sup>.

It is a common understanding in the European Union that the economy still needs an adequate legal framework to reach the aims of Art. 3 TEU. The paradigmatic shifts of the platform economy make it necessary to reconsider this framework. If there are fundamental challenges to the working mechanisms of the market economy, there needs to be a regulatory response. It may have been right to keep regulatory hands off from digital markets in the past when these markets were in an experimental phase or were expanding rapidly. Now, that the developments are much easier to read, it becomes important to design a framework that ensures innovation, variety and fair choice for consumers.

The indicators known from competition analysis suggest that there is room for improvement: There are dominant companies like MAGAF, their high market shares have been stable over a long period of time. The platforms have large financial means that immunise them against competitive pressure. Market entry barriers have risen due to network effects and the need for data. There is a risk that the free market economy with all its benefits may be distorted through gatekeepers. The coordination of well-informed individual decisions of private actors through competition starts to be hampered.

### 3.1 Losing the Customer Interface

The rise of the platforms, the use of data and the integration of markets mean that many of the most established and valuable companies, companies that form the backbone of the European economy face a prime threat: Companies lose the customer interface. They do no longer have direct access to their customers but can only access them through a platform. These platforms have a gatekeeping position. The undertakings are degraded to be suppliers or unequal “partners” of the platform operator or the key data handler. The competition of such suppliers is pushed to the periphery.

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<sup>48</sup> Cf. Bart van Ark, The Productivity Paradox of the New Digital Economy, 31 International Productivity Monitor 3 [Fall 2016], available at <http://www.csls.ca/ipm/31/vanark.pdf>.

The reason for this degradation lies in the dominance of data-based lock-ins of customers over the real product or service that these customers try to acquire. Schneider Electric or Saint-Gobain for example know less about their customers than Amazon or Google do. If they approach their customers nowadays via a platform all information is channelled through the platform (from marketing, distribution, preferences, product specifications etc.); and the platform has all sorts of tools available to steer the process of customer contact. The customer journey is channelled into one ecosystem, and the digital footprint of the customer primarily stays with the operator of that ecosystem. For suppliers, this loss of the customer interface means a disruption of their most valuable asset. For customers, this may be convenient in the short run, yet it may come with a loss of innovation, variety and choice in the long run.

### *Tipped Markets*

The shift would not be a troubling result for competition policy, yet it means that competition for the customer is pushed to the periphery: In the digital world, there are now situations where established companies lead their main battle in business with their competitor for access to the platform. They do not battle for the customer, but for the intermediary. “Platforms beat products all the time”, as *Marshall Van Alstyne* put it.<sup>49</sup> This constellation may be particularly awkward when the platform operator itself has a stake in the downstream market, for instance since it provides the goods or services itself.

In the centre of the coordination of supply and demand, there is the platform. Of course, different suppliers may still meet different customers on the platform, yet this is no longer a “free forum” of exchange as a marketplace, but it is a centrally organised and controlled environment.<sup>50</sup> It is a privately-run marketplace with the operator setting the conditions. Even when the platform operator is not actively manipulating or controlling either side, the essential communication between customer and supplier may at least be skewed. This is as a gatekeeping problem with all the potential to discriminatory and strategic behaviour this entails.

This push of competition to the periphery happens in markets that are “tipped”. “Tipping” means, that one platform can secure the bulk of market shares because of strong network ef-

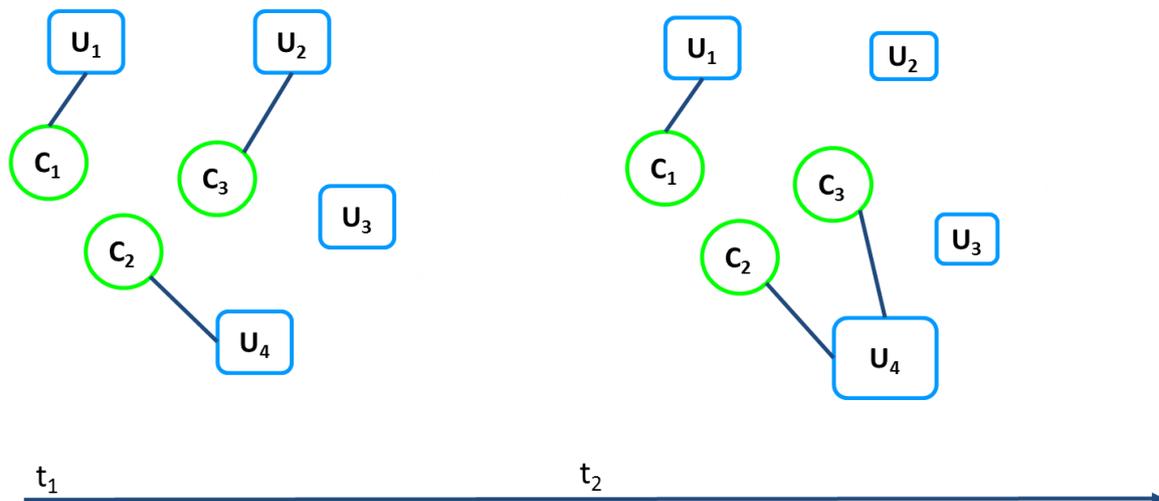
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<sup>49</sup> Quoted from Accenture, *Technology Vision 2016*, Trend 3, p. 8, available at [https://www.accenture.com/fr-fr/\\_acnmedia/PDF-2/Accenture-Platform-Economy-Technology-Vision-2016-france.pdf](https://www.accenture.com/fr-fr/_acnmedia/PDF-2/Accenture-Platform-Economy-Technology-Vision-2016-france.pdf).

<sup>50</sup> Julie E. Cohen, *Law for the Platform Economy* (June 22, 2017), available at SSRN: <https://ssrn.com/abstract=2991261>, agrees that platforms have replaced markets.

fects.<sup>51</sup> Business models of digital platforms try to be profitable by economies of scale. Yet, platforms do not stop once they have gathered a considerable size of the market. They aim at taking the full market within a short period of time. It is possible to achieve this aim with network effects that lead to a “tipping” of the market and make other platforms unattractive.<sup>52</sup> This is no longer competition *on* the market with different actors offering different services differentiating themselves by price and quality. It is a competition *for* the market:<sup>53</sup> the winner takes it all.<sup>54</sup> Under these circumstances a first-mover advantage may be so important that it is more favourable for a company to infringe the law, e.g. to occupy a given position and prevent the rise of competitors, and subsequently pay the consequences in terms of liability under competition law, rather than play fairly from the start.<sup>55</sup>

Competition on the market works as shown in the table: At t1, customers decide in favour of certain undertakings. At t2, they take a new decision in favour of an undertaking. This may lead to failure (U3) or success (U4) – but this may change at t3 again.



<sup>51</sup> Michael L. Katz/Carl Shapiro, Systems Competition and Network Effects, 8 The Journal of Economic Perspectives, 106 (1994).

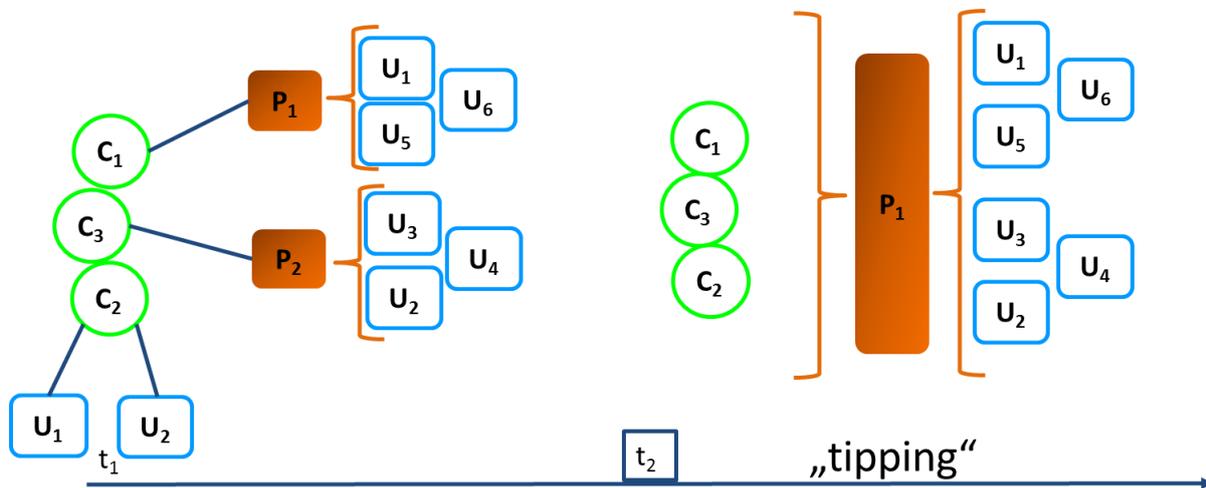
<sup>52</sup> German Federal Cartel Office, The Market Power of Platforms and Networks, Working Paper, 2016, p. 8 et seq.; Nicolai van Gorp/Olga Batura, Challenges for Competition Policy in a Digitalised Economy, Study for the ECON Committee (2015), p. 8.

<sup>53</sup> Alison Jones/Brenda Sufrin, EC Competition Law, 6<sup>th</sup> ed. (2016), p. 49.

<sup>54</sup> Rupprecht Podszun/Stephan Kreifels, Digital Platforms and Competition Law, EuCML 2016, 33, 38; Nicolai van Gorp/Olga Batura, Challenges for Competition Policy in a Digitalised Economy, Study for the ECON Committee (2015), p. 8.

<sup>55</sup> Nicolai van Gorp/Olga Batura, Challenges for Competition Policy in a Digitalised Economy, Study for the ECON Committee (2015), p. 67.

The process in platform markets is different when the market is tipped, i.e. when network effects are strong enough to favour one platform over all others. In this situation, there is no longer competition *on* the market, but competition *for* the market. When the market has tipped, direct competition for the customer has ended. It is now filtered for the undertakings by the monopolist platform operator:



At  $t_1$  in this scenario, platforms  $P_1$  and  $P_2$  compete for customers, that decide in favour of a platform or even another undertaking directly. This is competition for the market. Once, a platform has strong network effects there is a tipping of the market, customers have chosen one platform as the dominant one, and undertakings no longer compete directly for customers but via the platform – in the periphery, without a direct customer interface.

PayPal's *Peter Thiel* put it like this:

“Competition is for losers.”<sup>56</sup>

This is the philosophy in many Silicon Valley style undertakings that no longer aim at a fair competition with other companies offering the same services or goods. Instead, their whole business model (driven by investors that look for a quick return) is oriented towards taking a market as a whole. This is a serious difference to traditional models of competition. For strong companies, e.g. manufacturers of household appliances or insurers, a theoretical aim may have been to gain a monopoly position. Yet, in practice the business models were always calculating with competition. It is in the veins of such companies to have a competitive edge on the horizontal level, to be more efficient, more innovative, quicker and better than the other companies offering the same goods and services.

<sup>56</sup> Peter Thiel, Competition is for Losers, Wall Street Journal, 12.9.2014, available at <https://www.wsj.com/articles/peter-thiel-competition-is-for-losers-1410535536>.

This concept is differing from the business models of platforms. They aim at growing fast, use economies of scale and network effects to win over the whole market (or very substantial parts of it) within a short period of time. This is the concept that drives Uber, Facebook or eBay. Network effects provoke such business models and make it reasonable for customers to enter the dominant platform (or the ecosystem). Once the market has tipped the platform can exercise its gatekeeping position.

### *The Immunisation of Platforms*

Platforms may themselves be subject to competition so that competing platforms may be established that offer better access to suppliers or that do not exploit customers. This however is mitigated by the huge competitive advantage after a market has tipped. In the areas with a longer online tradition we now see how difficult it is to challenge platforms after a certain point. Facebook, eBay, Google, Amazon and others have accumulated network effects and datasets to a degree that makes it difficult – if not impossible – to imagine competitors taking over. Of course, when discussing market shares or power of online businesses, people point at Myspace, Yahoo and other companies that looked like invincible giants for a while.<sup>57</sup> But, the situation has changed now. Myspace, for instance, was particularly strong from 2005 to 2008, but has been in steady decline.<sup>58</sup> Google on the other hand has been continuously successful in search and in advertising for more than a decade. There is no end of this success story in sight. This is not necessarily due to the good performance of Google, but it may have to do with the character of “super platforms”. *David Evans*, refuting this view, takes his standpoint mainly from historic experience in digital markets.<sup>59</sup> Yet, he underestimates that markets have matured and that the position of some companies has been petrified.

A comparison of the market capitalisation and the enterprise value of the global top 8 digital platforms and the global top 8 industrial companies by Roland Berger shows that financial markets believe in platforms. This table is not at all an indication for contestable market positions, but it shows the stability of super platforms:

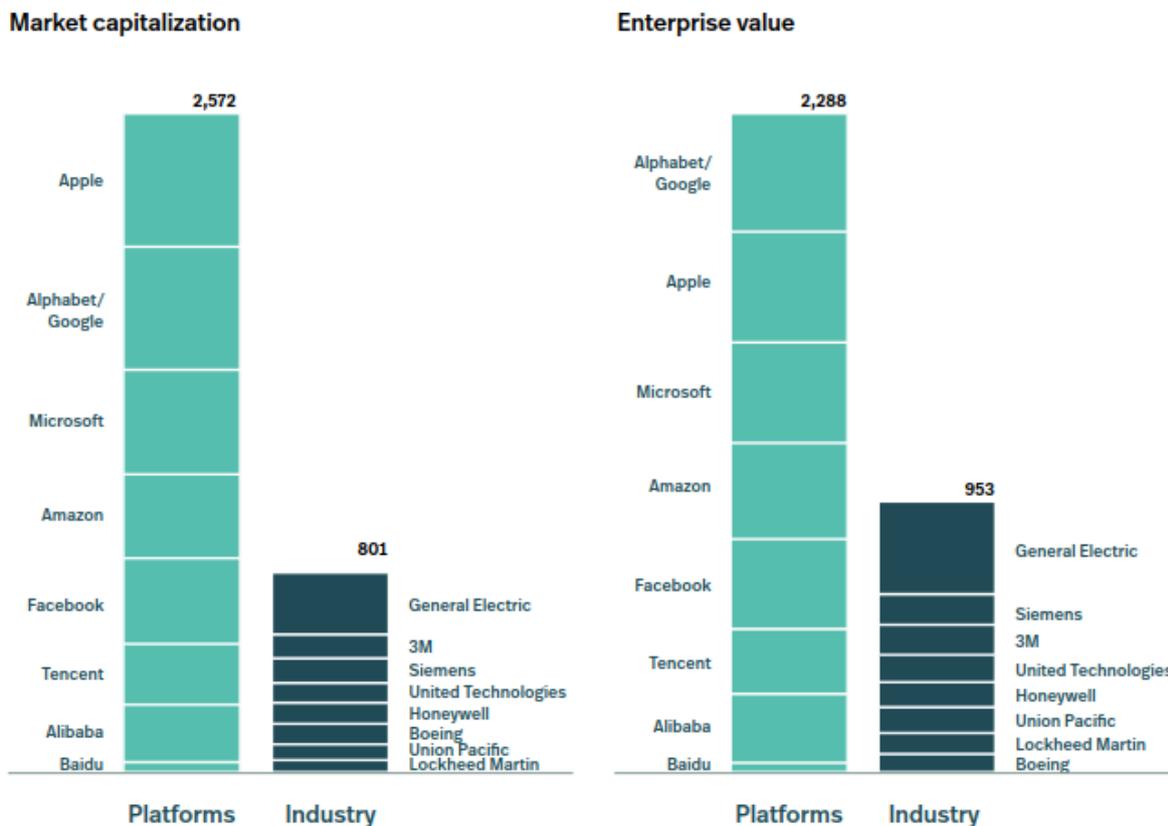
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<sup>57</sup> And so did the author, e.g. Rupprecht Podszun, Entmachtungsinstrument Wettbewerb, *Neue Zürcher Zeitung*, 29.4.2014, available at <https://www.nzz.ch/meinung/debatte/entmachtungsinstrument-wettbewerb-1.18389431>.

<sup>58</sup> Cf. <https://techcrunch.com/2008/06/12/facebook-no-longer-the-second-largest-social-network/> [20.09.2017].

<sup>59</sup> David S. Evans, *Why the Dynamics of Competition for Online Platforms Leads to Sleepless Nights But Not Sleepy Monopolies* (July 25, 2017), available at SSRN: <https://ssrn.com/abstract=3009438>.

Comparative valuation of platforms and industrial companies, global top 8 [EUR bn] \*



Sources: Bloomberg; Roland Berger \* as of Sep 6, 2016

Source: Roland Berger/Internet Economy Foundation, Fair Play in the Digital Arena, 2016, p. 18.<sup>60</sup>

The super platforms rely on network effects and data sets. Market entry barriers are very high due to these features.<sup>61</sup> Companies that wish to offer social network services or search and advertising services would have to build a comparable base of data and network effects. That does not just seem very unlikely but rather impossible. This competitive advantage is steadily growing.

And still, the super-platforms may be unseated from their position by competition, theoretically. Such a theoretical chance is not enough: Competition regulation is needed.

Competition comes, in part, from other super-platforms, e.g. with Facebook eating into Google’s advertising revenues and vice versa. This form of “interplatform competition” may be seen as

<sup>60</sup> The Study is available at <https://www.rolandberger.com/de/press/Digitale-Plattformen-als-Wachstums-und-Innovationstreiber-Europa-muss-handeln.html>.

<sup>61</sup> Justus Haucap/Ulrich Heimeshoff, Google, Facebook, Amazon, eBay: Is the Internet Driving Competition or Market Monopolization?, DICE Discussion Paper No. 83 (2013), p. 5.

the 21<sup>st</sup> century version of “interbrand competition”. Different from interbrand competition it is not just a vertical value chain, but a whole interconnected ecosystem that goes into competition.

The most disciplining factor is potential competition from new technologies or new business models that supersede the existing model altogether.<sup>62</sup> A major technological disruption could challenge the position of a platform, but even that has become unlikely since the MAGAF-companies command the necessary technological, intellectual and computational facilities. What is more, financial means allow market leaders to outdo competitive threats.

If companies appear on the horizon that could challenge the platform business model the incumbents have all financial possibilities to eliminate these rivals.<sup>63</sup> Two strategies are reported: buying up rivals and aggressive imitation. Start-ups with innovative ideas will get offers from one of the platforms and be bought. Most well-known cases are the acquisitions of Instagram and WhatsApp by Facebook.<sup>64</sup> When Facebook noticed that young people turn to Instagram for messaging and networking, Instagram was bought in 2012 for \$ 1 billion.<sup>65</sup> Such acquisitions are sometimes called “shootout acquisitions” since they eliminate potential competition by buying it away.<sup>66</sup> If start-ups refuse to be bought it is reported that their features are copied and integrated as quickly as possible.<sup>67</sup> Financial means and existing customer relationships make it possible to roll out new features with massive impact.

Another building block in fencing the own business is the integration of markets. The switching costs for customers to change from one ecosystem to another can be extraordinarily high.<sup>68</sup> This further mitigates the effects of (potential) competition. Actual or potential competition is unlikely with high switching costs. This is what – under European competition law – would be called dominance.<sup>69</sup>

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<sup>62</sup> Ariel Ezrachi/Maurice E. Stucke, *Virtual Competition*, 2016, p. 175.

<sup>63</sup> On the financial means of the leading platforms cf. CNN, Apple, Google and Microsoft are hoarding \$464 billion in cash, 19.7.2017, available at <http://money.cnn.com/2017/07/19/investing/apple-google-microsoft-cash/index.html>.

<sup>64</sup> For more examples, see <http://time.com/3815612/silicon-valley-acquisition/>.

<sup>65</sup> <https://dealbook.nytimes.com/2012/04/09/facebook-buys-instagram-for-1-billion/?mcubz=0> [20.09.2017].

<sup>66</sup> Economist, *The world’s most valuable resource*, 6.5.2017, p. 7.

<sup>67</sup> Anecdotic proof of Facebook as a copycat can be found in several reports, e.g. <http://www.businessinsider.de/all-the-times-facebook-copied-snapchat-2017-5?r=US&IR=T> (Facebook and Snapchat) or [https://www.washingtonpost.com/business/economy/facebooks-willingness-to-copy-rivals-apps-seen-as-hurting-innovation/2017/08/10/ea7188ea-7df6-11e7-a669-b400c5c7e1cc\\_story.html?utm\\_term=.e90e5d128199](https://www.washingtonpost.com/business/economy/facebooks-willingness-to-copy-rivals-apps-seen-as-hurting-innovation/2017/08/10/ea7188ea-7df6-11e7-a669-b400c5c7e1cc_story.html?utm_term=.e90e5d128199).

<sup>68</sup> Justus Haucaj/Ulrich Heimeshoff, *Google, Facebook, Amazon, eBay: Is the Internet Driving Competition or Market Monopolization?*, DICE Discussion Paper No. 83, p. 8.

<sup>69</sup> Cf. ECJ, 13.2.1979, Case 85/76, ECLI:EU:C:1979:36 – *Hoffmann-LaRoche*.

## Regulatory Responses

Dominance as such is not regarded as a problem that prompts regulatory intervention. Art. 102 TFEU only challenges the abuse of dominance. For instance, a dominant company may not use its power to discriminate against other companies that try to gain access on downstream markets.<sup>70</sup>

It should be pointed out here, that not all platforms act that way. There are many different models for platforms, for instance open platforms with high standards of interoperability. Not all multi-sided markets are necessarily under the grip of one company that commands a gatekeeping role.

Yet, proprietary ecosystems and gatekeeping platforms may require a regulatory response. The European Commission has tried its chances with Google in the case Google Shopping. The decision, based on the prohibition of abuse of dominance in Art. 102 TFEU, came out in 2017 after seven years of investigation.<sup>71</sup> The decision does not serve as an encompassing model approach for remedying competitive problems in the digital economy.

It is necessary to watch the conduct of gatekeepers and develop “theories of harm” for the application of the abuse provisions in competition law that remedy the problems associated with the control of ecosystems.

The pre-emptive tool in competition law is merger control that avoids that companies acquire – by their sheer financial means – other companies and market power with that. In the past, merger control has not been exercised vigorously vis-à-vis MAGAF. Competition authorities need to have jurisdiction to review such mergers and need to identify the competitive harm of such merger activities in a more active way.<sup>72</sup>

The following statistics illustrate the striking silence of merger control in the digital economy:

<b>Mergers reported by MAGAF on Wikipedia:</b>	<b>629</b>
<b>Of these: notified to the European Commission:</b>	<b>12</b>
<b>Of these: substantial intervention by the European Commission:</b>	<b>2</b>

MAGAF-mergers that may significantly impede effective competition often are not caught under the current jurisdiction for mergers since revenues of the targets do not meet the turnover thresholds. The German legislator reacted in 2017 by introducing a transaction-value-based

<sup>70</sup> Cf. Alison Jones/Brenda Sufrin, EU Competition Law, 6th ed, 2016, p. 559 ff.

<sup>71</sup> Cf. European Commission, 27.6.2017, Case 39.740 – *Google Shopping*.

<sup>72</sup> Monopolkommission, Competition policy: The challenge of digital markets, Special Report No 68, 105.

threshold (of € 400 million) into German law.<sup>73</sup> The merger of Facebook and WhatsApp that had slipped the jurisdiction of Germany would now have to be notified to the Bundeskartellamt since the price paid by Facebook was higher than € 400 million (it was \$ 19 billion).

Apart from merger control, platforms need some further governance due to their market-replacing function. If markets have a framework – why should platforms not have a governing framework?

Yet, it is important to avoid chilling effects for competition and it should not be disregarded that companies like Google brought enormous advantages to customers and are highly successful with consumers. Thus, a regulatory intervention needs a clear theory of harm.

This harm lies in the effects of dismembering supply and demand. The coordination of supply and demand is no longer carried out by “the market” with all the complex mechanisms underlying this concept, but to an ever-larger degree by a data- and algorithm-driven operator. Pushing industries away from the customer, tying the customer to a platform and steering the contacts of customers and suppliers has elements of a centrally planned economy, not a free market economy. Choice may be reduced and offers of companies can no longer be as well designed as before. Signals that customers and suppliers exchange in markets may be distorted in favour of the profit of single private entities that do not organise the exchange in the public interest. Some customer journeys are no longer guided by *Adam Smith’s* invisible hand, but they are in the grip of a strong operator.

It needs to be born in mind that in the end it is not the service of Uber or Google that a consumer is looking for but the service of the driver or the content of the website where Uber and Google direct their customers to. Uber and Google offer valuable services, yet these are auxiliary services to the ones that customers are ultimately interested in. Making auxiliary services dominant over real services is a strange distortion of market mechanisms.

## **3.2 Delegation of Decision-Making**

In the last subchapter the focus was on the companies’ view; that are degraded to suppliers of a platform-based business. They lose influence in the market process. This development is mirrored on the demand side with customers delegating their decision-making to platform operators, digital assistants, machines or algorithms.

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<sup>73</sup> § 35(1a) Act against Restraints of Competition, see below.

## *Loss of Autonomy – and of Economic Signals*

To take a very easy example: As soon as an individual uses the route guidance system in the car it usually follows the lead of the GPS-based tool. It does no longer decide for itself what route to take. Compared to times without algorithm-based guidance systems this is a loss of autonomy: Formerly, people had to find the way themselves, by asking the way, by looking on a map or by trial and error. They had many choices available and each choice opened up new choices, new paths in the literal sense of the word. Using a data-based electronic tool is much more efficient than most older forms of finding the way. Yet, it reduces the individuals' influence and grants the operator of that system (or the self-learning software) the power to determine the geographic location at specific times of a person. This cost may seem insignificant in the concrete example. However, it involves the direction of traffic on certain routes which can be very important for residents or filling stations. It means that the user's position is known and data thereof saved by a relatively unknown operator; the user may be strategically directed; the capacity of the brain to build spatial oversight is probably weakened.

First and foremost, the use of digital assistants takes away decisions from the individual. This is a loss of autonomy that may seem insignificant at first, but may have long-term consequences.

In a normative understanding, the EU has always stood up for the private autonomy of its citizens in their daily life. The delegation of this autonomy, even if voluntary, is a loss of freedom in society. Consumers are often not aware of the medium- and long-term impact of what they do and the basis of decisions taken for them. There is a lack of transparency. Needs and preferences are less recognised and communicated by the individual herself. The traditional idea of the enlightened individual thus becomes unstable.

There is an economic angle to this: Economic signals regarding price, quality or other factors of goods and services may get lost. The essential parameters are determined in the interplay of companies and the central platform operator, not in the bargaining of consumer and industry. The negotiating position of consumers is weakened (as is the position of suppliers) due to a lack of transparency, dependency from the platform and overwhelming negotiating advantage for the platform that knows data and preferences and makes use of default biases (as recognised in behavioural studies)<sup>74</sup>.

The more path-dependent consumers become, the more difficult it will be to drop out of the system. Switching costs will rise if there is an alternative left at all. Ultimately, choices are reduced.

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<sup>74</sup> Cf. Daniel Kahneman/Amos Tversky, The psychology of preferences, 246 Scientific american, 160 (1982).

With monopolisation, consumers lose the role of “referees” in the market. Competition authorities need to fill the refereeing position.<sup>75</sup>

### *Influence of the Platform Operator*

Even where choices are offered, customers can no longer be sure to see a full range of options, e.g. when the search engine, the online shop, the smartphone or the digital assistant privileges certain providers.

Another well-known example is the Google search ranking. According to studies cited by the European Commission in the Google Shopping case the first ten search results receive approximately 95% of all clicks by users of Google.<sup>76</sup> So, websites (and offers) are at the mercy of the Google Search Algorithm: if not presented in the first seven results, business may be closed. Presentations may differ as well. If Foodora decides to present restaurants in a particularly nice way this may heavily influence the user’s decision in favour of a certain offer.

The decision-making process (or rather the algorithmic production of outcomes) is less transparent than ever with so called “black box business models” and little information available (e.g. on reputation rankings, provision models or exact obligations of platforms and suppliers). Decisions become less well-informed. The consumer no longer knows on what basis a decision is made for her. The Bundeskartellamt, using new consumer law competences for the first time, started a sector inquiry regarding online comparison websites in 2017 “to ensure that the consumers can count on their reliability, objectivity and transparency.”<sup>77</sup>

The problems with objectivity and transparency for consumers are driven to extremes when digital assistants like Amazon’s Echo or Apple’s Siri-based HomePod start to work properly, integrating third party services. The idea of such assistants is that voice commands start operations that cater to the needs. Imagine, a consumer wants to see a basketball game at the stadium, and makes the digital assistant organise this. What if the digital assistant cooperates with Uber exclusively and therefore does not offer other taxi companies or public transport to reach the stadium? Does the user know this? Does the user change this default rule if at all possible?

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<sup>75</sup> Neelie Kroes, Consumer welfare: more than a slogan, DG Competition, Speech/09/486, 21.10.2009, p. .

<sup>76</sup> [http://europa.eu/rapid/press-release\\_MEMO-17-1785\\_en.htm](http://europa.eu/rapid/press-release_MEMO-17-1785_en.htm) [20.09.2017].

<sup>77</sup> Cf. the Bundeskartellamt’s press release of 24 October 2017, available at [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/24\\_10\\_2017\\_Vergleichsportale.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/24_10_2017_Vergleichsportale.html?nn=3591568).

This is a shift in our picture of the market economy where markets coordinate individual decisions by market actors. Customers no longer take as many decisions as before, choices are made for them, their awareness of the processes is doubtful.

### **3.3 Markets and their Function**

The core activity of markets – the free exchange and coordination of individual, well-informed decisions on economic preferences – is on the retreat. Transactions are more and more determined by central operators while the competitive process is pushed to the periphery once competition for the market has been decided. What does this actually mean for the market economy from a macro-perspective? It endangers the classic functions of markets.

#### *Competition on the Merits*

Firstly, markets may no longer perform their function to select winners and losers in the competitive race. This role is fulfilled by gatekeeping companies that control access to customers and competition of suppliers. Their mode of selection of companies (and of coordination of supply and demand) has different standards than consumer welfare or total welfare of society or conceptions of freedom. Winners and losers are designated according to their value for the operators of central platforms.

The economy distributes scarce resources in a society. So far, the mechanism of this distribution was mainly competition on the merits with customers as the referees. With competition at the heart of the economic process, society has a meritorious distribution of assets. If gatekeepers distort this competition or push it to the periphery, goods in society are administered by different standards.

#### *Open Discovery Procedures*

Secondly, markets may no longer work with the “open discovery procedure” (as *Friedrich von Hayek* put it).<sup>78</sup> The open discovery procedure of competition brings to light new demands, new ideas, innovation. The openness has given way to a more data-based assignment of goods and services where preferences of consumers are developed only to the benefit of the platform oper-

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<sup>78</sup> Friedrich von Hayek, *Wettbewerb als Entdeckungsverfahren*, 1968.

ator. This may in the long run lead to restricted innovative activities. Also, the requirements for strong innovative activities (namely different paths, diversity, capacities for openness etc.) are no longer given. In its 2017 decision of the merger case Dow/Dupont, the European Commission acknowledged the central function of diverse paths for innovation and choice.<sup>79</sup>

Companies also lose their “second chance”: The rivalry in the process of competition as known so far lives upon the possibilities for companies to try again the next day – competition is an iterative, dynamic process that grants second chances.<sup>80</sup> These second chances are important since they guarantee an evolution towards better performances. If the open discovery procedure is cut off, it becomes less likely that companies have a second chance and can evolve. The data-based selection process will presumably be controlled in a stricter, less open way than competition without profit-oriented intermediaries that organise the market.

### *Free Exchange of Views*

Finally, markets may lose their function as places where information is exchanged and where opinions are formed – the market as the economic equivalent of the forum in politics. Since information is more and more centralised and since there is the danger that it is transmitted to market participants selectively, it becomes more difficult to realise the information function of markets: formulating needs, determining prices, signalling scarcity of goods, evaluating transactions, building selection parameters. Parts of these market functions are placed in black boxes. Transparency is lost, and information can hardly be checked. The understanding of the processes of distribution becomes more difficult. This reduction in the market of opinions will also become a problem for regulators and politics when they have no access to the information for economic policy.

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<sup>79</sup> European Commission, 27.3.2017, Case M.7932 – Dow/Dupont, at p. 432 ff.

<sup>80</sup> Cf. John Maurice Clark, *Competition as a Dynamic Process*, 1961.

## Access to Data

The extreme use of data is one of the three shifts that characterise the digital economy. If data are monopolised in the hands of one undertaking although the data are needed to succeed in the market this may reduce competitive pressure.

### 4.1 Data Ownership

When access to should be facilitated, it would be counterproductive to introduce a “data ownership right”.

In public, the question of data ownership has generated some discussion. The term “ownership” is usually meant as some form of exclusivity, in the sense of an intellectual property right. A study commissioned by the German Ministry of Transport in 2017 suggested an “ownership framework” for mobility data.<sup>81</sup> The study provides many valuable insights regarding data collection, protection and access to data. It also suggests allocating a data right to the person that bears the essential investment. To determine who this person is, several criteria are established:

“Who can be credited with the generation of the data? Who bears the costs for development and production of data-generating goods? Is there compensation for this? Who bears the operating costs for the data generating good (e.g. service, repair, electricity etc.)? Who effects the act of “authoring”? Does the “author” generate the data for someone else (e.g. in the course of a mandate or as an employee etc.)? Who bears the costs for necessary storage?”<sup>82</sup>

According to these criteria, data generated when driving would usually be economically attributed to the car owner who took the investment of buying and operating the car (while the producer was compensated for his costs through the payment of the car).

When discussing the issue of exclusive attribution of data in the sense of property it is important to see distinguishing features of data: Other than tangible property, data are non-rivalrous goods (i.e. can be used by multiple persons without a loss in value). Different from copyrighted creations or patented innovations, i.e. intellectual property, there is no specific idea that is encapsulated or incarnated in data. Many data do not even require a specific investment, since data is

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<sup>81</sup> Bundesministerium für Verkehr und digitale Infrastruktur, „Eigentumsordnung“ für Mobilitätsdaten?, 2017, available at [http://www.bmvi.de/SharedDocs/DE/Publikationen/DG/eigentumsordnung-mobilitaetsdaten.pdf?\\_\\_blob=publicationFile](http://www.bmvi.de/SharedDocs/DE/Publikationen/DG/eigentumsordnung-mobilitaetsdaten.pdf?__blob=publicationFile).

<sup>82</sup> BMVI, „Eigentumsordnung“ für Mobilitätsdaten?, 2017, p. 104 f. (translation by R.P.).

often generated automatically or collaterally (e.g. the speed of a car or the perspiration of the driver. Collecting and analysing or exploiting such data may trigger an investment. Such refined data may be protected under existing laws for the protection of intellectual property, e.g. as a copyrighted work, as a database or as know how or a trade secret.

The Munich Max Planck Institute for Innovation and Competition issued a position statement saying that there is neither a legal nor an economic justification for creating an exclusive right in data.<sup>83</sup> There is no legal principle that data need to be assigned exclusively to a distinct legal entity. From an economic viewpoint, the Max Planck Institute warns against an interference that may hamper the development of markets. It cannot clearly be projected how an exclusive right to data would play out in practice. The authors explicitly warn:

“Based on the current state of knowledge, there are also no economic reasons for recognising exclusive rights in data. On the contrary, this would entail the risk of interference with the freedom to conduct a business and the freedom to compete, the risk of impeding business operations of other market players who depend on access to data, and generate negative effects on the development of downstream data markets. Of critical concern would be the strengthening of existing data power and the creation of new market power derived from data, which would foster anti-competitive market entry barriers. The general principle of a public domain of free information must prevail over the imminent creation of “information monopolies”. In light of the apparent dynamic development of the digital economy, no general market failure can be observed or expected. Thus, no legislative incentives for the collection or creation of data are necessary: data will be produced anyway, often as a by-product.”<sup>84</sup>

This statement puts in the nutshell why exclusive rights to data would be a wrong step. If the owner of a car would have the exclusive right over data generated by driving the car, the coordination of telematics for a smooth running of transportation would become nearly impossible. The creation of the exclusive right would necessitate further legislation, restricting the freedom to exercise that right. Many interesting applications and usages would be burdened with transaction costs.

Furthermore, an intangible good like data needs some specification to be protected legally: What would be the exact content, scope, requirement, level of protection, etc. of data as a legally protected asset?

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<sup>83</sup> MPI, Data Ownership and Access to Data, Position Statement 16 August 2016.

<sup>84</sup> MPI, Data Ownership and Access to Data, Position Statement 16 August 2016, p. 2.

The protection of intellectual property has come under criticism anyway. Some critics doubt that the protection of IP still serves as an incentive to innovate. Patent law, but also copyright have developed into a bargaining chip in markets with several associated problems like blocking patents or patent trolls. It would be hard to devise a smart system of protection for data that avoids such problems.

*Fritz Machlup* who was one of the first scholars to conduct an empirical study into the effects of the patent law system concluded in 1958:

“If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.”<sup>85</sup>

The reservations towards creating new IP rights have grown considerably since and should place the costs of instituting such a system high on the agenda. Without a clear plan what to achieve with such a data right and without a solid model of the effects of creating such a right it would be a mere gamble to create such a legal institution.

## 4.2 Barriers to Data Sharing

For the European Commission it is a political aim to foster data sharing or pooling agreements:

„In order to extract the maximum value from this type of data, market players need to have access to large and diverse datasets.“<sup>86</sup>

However, there is ambivalence in the Commission’s position towards data exchanges. From a competition law viewpoint, data exchange may be regarded as a highly problematic information exchange. The rules in Art. 101 und 102 TFEU are barriers to data sharing since undertakings may run the risk to be held liable for an illicit information exchange or for discrimination if they do not let all companies participate from their data pools.

The Commission itself has sent mixed signals in this regard. While trying to encourage data pooling on the one hand side it abolished an exception for data pools in the insurance business on the other hand. When the Insurance Block Exemption Regulation (IBER) expired on 31 March

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<sup>85</sup> Fritz Machlup, *An Economic Review of the Patent System*, Study for the US Senate, 1958, p. 80, available at <https://mises.org/library/economic-review-patent-system>.

<sup>86</sup> European Commission, Communication „Building a European Data Economy“, 10.1.2017, COM(2017) 9 final, p. 4.

2017, the Commission refrained from prolonging the exemption (then in Art. 2 IBER) for the data exchange between insurers and reinsurers. Instead the general Horizontal Guidelines with their case-by-case assessment were seen as sufficient for balancing the efficiencies of data exchanges in the sector.<sup>87</sup>

Guidance on competition law risks given by the Commissioner for Competition so far has not been particularly helpful for other sectors either. In a speech, the Commissioner tried to encourage data sharing.<sup>88</sup> She referred companies to the Horizontal Guidelines for assessing the cooperation between competitors.<sup>89</sup> These Guidelines generally require to be non-discriminatory (i.e. all players in the market need to have access) and are critical of the exchange of current, specific data that are not aggregated or anonymised. However, big data these days actually lives upon real-time-transmission of the most current and concrete information available. The Guidelines are in line with the Court of Justice's leading case *Asnef-Equifax* on a data exchange in Spain regarding the creditworthiness of debtors.<sup>90</sup> The Court held in 2006 that an information scheme regarding information on creditors may not be restricted to a club of companies but needs to be open for all interested banks. Information may not be disclosed in a non-aggregated, non-anonymised version. The Commission may take a look at revising this line of reasoning for modern big data cases.

The Bundeskartellamt has accepted a joint venture in the car industry where large datasets are involved and where the criteria from *Asnef-Equifax* (now in the context of merger law) may have been interpreted widely. The case concerned the takeover of a mapping-service called HERE whose data are instrumental for automated driving. HERE was bought by Daimler, BMW and Audi, leading German car manufacturers.<sup>91</sup> Later, Intel, NavInfo and Tencent (from Singapore) joined the group of investors in HERE.<sup>92</sup> The Bundeskartellamt was ready to accept the pro-competitive effects of data sharing in the case without expressly making it a condition to grant

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<sup>87</sup> Cf. European Commission, Commission Staff Working Document, Impact Assessment – HT.4012 – IBER, SEC(2016) 536, p. 65.

<sup>88</sup> Margrethe Vestager, Big Data and Competition, Speech, 29.9.2016, available at [https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/big-data-and-competition\\_en](https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/big-data-and-competition_en).

<sup>89</sup> Communication from the Commission, Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, Official Journal C11, 14.1.2011, p. 1.

<sup>90</sup> ECJ, 23.11.2006, Case C-238/05, ECLI:EU:C:2006:734 – *Asnef-Equifax*.

<sup>91</sup> Bundeskartellamt, 6.10.2015, Press Release, [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2015/06\\_10\\_2015\\_HERE.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2015/06_10_2015_HERE.html?nn=3591568) (no decision reported yet).

<sup>92</sup> Bundeskartellamt, 24.1.2017, Press Release, [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/24\\_01\\_2017\\_HERE.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2017/24_01_2017_HERE.html?nn=3591568) (no decision reported yet).

access to, for instance, Tesla, Google or Toyota. HERE will probably be mainly an open data platform for the undertakings involved.

### 4.3 Access Regimes

Even if competition law restrictions are put aside, access to essential data will remain a battlefield for companies.<sup>93</sup> Data are under the factual control of certain entities. The data collected when driving, for instance, are recorded by software or sensors or chips in the car and may be transmitted to certain companies. In an exemplary move, the German legislature introduced a norm in the Act against Restraints of Competition stating explicitly, that access to relevant data may lead to market power (§ 18 (3a) No. 4 Act against Restraints of Competition). This is a significant clarification of the effect of data for markets.

The legal framework applicable is essentially a contractual one. If necessary, companies get the consent of data-generating users by signing of contracts and the small print within. Competitors or other companies that need data will primarily try on a contractual basis to get access to data.

If denial of access to data proves to be a problem or if the pooling of data would be essential for major advances in a sector (as may be the case in mobility or insurance) the question arises how the law could influence data contracts. In practice, different solutions have been found in different sectors how to enable access to data.<sup>94</sup> In its communication on “Building a European Data Economy”,<sup>95</sup> the Commission proposed several non-legislative measures such as guidance on data sharing, technological improvements and model contract terms. As legislative measures, the Commission suggested amendments of contract law, access obligations for public interest purposes, a data producer’s right for non-personal or anonymised data, and access obligations against remuneration. As pointed out earlier, the data producer right is not at all helpful in this regard.

#### *Contractual and Tort Law Solutions*

The obvious tool for a contract law hold-up would be to enforce contract law remedies and to introduce mandatory provisions. Contract law tools include mechanisms to balance the bargain-

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<sup>93</sup> Cf. Josef Drexler, *Designing Competitive Markets for Industrial Data in Europe*, Max Planck Institute for Innovation & Competition Research Paper, No. 16-13, 2016, p. 70 ff.

<sup>94</sup> Cf. the examples in European Commission, *Commission Staff Working Document on the free flow of data and emerging issues of the European data economy*, 10.1.2017, SWD(2017) 2 final, p. 12 ff.

<sup>95</sup> European Commission, *Communication „Building a European Data Economy”*, 10.1.2017, COM(2017) 9 final.

ing power of parties, e.g. by protecting them from unfair contract terms or usurious practices. It would be possible to introduce model terms or default rules for licencing contracts that include access rights.

Tort law would require duties of care that – upon violation – trigger remedies. For instance, one may use the clause in Art. 5 of the Unfair Commercial Practices Directive (2005/29/EC) to claim an unfair dealing. Yet this very general clause would not provide the legal certainty necessary for business.

### *Access Through Competition Law*

Competition law knows cases where access is provided when otherwise competition would be eliminated. For instance, under Art. 102 TFEU it would be abusive not to grant access to an essential facility (like an infrastructure) or a standard-essential patent (if certain requirements are met). Cases on access under competition law like the refusal to licence cases *IMS Health* (license for a copyrighted database system)<sup>96</sup> or *Huawei/ZTE* (license for a standard-essential patent)<sup>97</sup> have been very complicated, long-running and with strict requirements.

They also prompted the question of compensation for access, i.e. the licensing fee. In the *Huawei* judgment the Court made it clear that the solution to such difficult bargaining situations is best found in the negotiating process of two parties; and accordingly, it devised the steps for a bargaining process that should lead to an agreement of the rightholder and the party seeking access. The Court's judgment and its cautious approach to obligations for the rightholder – under conditions of dominance! – can be read as a warning post that public bodies should not interfere too heavily in the case-to-case-business of granting access. This solution in *Huawei* also makes it plain that access can only be granted compulsorily under exceptional circumstances. In the case *Reuters Instrument Code*, a real-time-datafeed-case, the Commission – having investigated Thomson Reuters for an abuse of a dominant position with certain codes, accepted commitments that guaranteed access to these data for actors on the financial market.<sup>98</sup>

### *Sector-specific Access Frameworks*

Sector-specific regulation has been tried in some instances. Under Art. 6 Euro5/6-Regulation (Reg. 715/2007) there are provisions granting access to repair and service information for cars that have to be provided for repairers so that they can enter the services markets for specific car

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<sup>96</sup> ECJ, 29.4.2004, Case C-418/01, ECLI:EU:C:2004:257 – *IMS Health*.

<sup>97</sup> CJEU, 16.7.2015, Case C-170/13, ECLI:EU:C:2015:477 – *Huawei/ZTE*.

<sup>98</sup> European Commission, 20.12.2012, Case 39.654 – *Reuters Instrument Code*.

brands.<sup>99</sup> The High Level Group, installed by the Commission for the Automotive Industry (GEAR 2030) cautiously recommended to develop sector-specific access frameworks.<sup>100</sup> Such sector-specific regulation is often based on concrete experiences of the past. It does not offer a blueprint for all sectors but addresses specific problems.

### *The Way Forward*

In summary of these proposals, it seems that all approaches have their flaws: sector-specific regulation does not suffice to solve the problem for the Internet of Things at large. Competition remedies only work under exceptional circumstances on a case-by-case basis. Liability rules may remedy the problem in the aftermath but do not provide the necessary legal certainty for investments and ex ante-access. Contract law solutions may remedy distortions in contracts but do not provide for access as such.

The solution lies in a three step process: Firstly, it needs to be ensured that technical obstacles of access are reduced to a minimum. This means that interoperability, portability and standardisation need to be strengthened.<sup>101</sup> The INSPIRE directive 2007/2/EC, a directive for public sector spatial information, trying to bring conformity to spatial data, may serve as an example.<sup>102</sup> Standards secure technology neutrality. The TOSCA project for clouds is an example for standards, set by a private standard-setting initiative in order to make clouds compatible.<sup>103</sup>

Secondly, it is necessary to incentivise parties to enter into contract in the first place. The prime incentive to enter into contract is financial compensation that is to be expected from the user of data. Where financial incentives are not sufficient, since gains from monopolising aftermarket are too high, competition standards may apply, forcing the parties to the negotiation table. Thirdly, the remuneration issue for granting access as a follow-up topic needs to be addressed.

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<sup>99</sup> From the German legal practice cf. the case where a Jaguar repair service claimed access to software information under provisions of competition law in order to be able to repair Jaguar cars, German Federal Supreme Court (BGH), 26.1.2016, Case KZR 41/14, ECLI:DE:BGH:2016:260116UKZR41.14.0 – *Jaguar Vertragswerkstatt*.

<sup>100</sup> GEAR 2030 - High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union - Final report, 18.10.2017, available at <http://ec.europa.eu/docsroom/documents/26081>.

<sup>101</sup> European Commission, Communication „Building a European Data Economy”, 10.1.2017, COM(2017) 9 final.

<sup>102</sup> Cf. the list of legal acts regarding the INSPIRE framework here: <https://inspire.ec.europa.eu/inspire-directive/2>.

<sup>103</sup> Cf. [https://www.oasis-open.org/committees/tc\\_home.php?wg\\_abbrev=tosca](https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=tosca).

An ombudsman-procedure would provide quick solutions. A yardstick could be the FRAND-licenses in IP law.<sup>104</sup>

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<sup>104</sup> FRAND stands for Fair, reasonable and non-discriminatory. Cf. Thomas Hoehn/Alex Lewis, Interoperability, Remedies, FRAND Licensing and Innovation, 34 European Competition Law Review 101 (2013).

## Recommendations

When fundamental mechanisms of the economy are at stake, it is the role of the legal framework to safeguard the functioning of markets. The rules of competition law,<sup>105</sup> including unfair competition law,<sup>106</sup> are the substantive starting point for this. Institutionally, the European Commission and the National Competition Agencies act as public bodies in this field. Apart from that, private enforcement must remain a powerful tool. Responses to the issues of the platform economy need to be oriented towards securing innovation, variety and fair choice for consumers. There is no need to panic. Markets are dynamic, and in general digitalisation has provided enormous advantages. In some fields, it may suffice to rely on self-healing forces of the market economy, yet where markets have been tipped and where companies immunise themselves for a long time against competitive challenges, it is necessary to preserve market functions. Where the phase of market development has moved to a stabilisation process, it may be timely to check the framework.<sup>107</sup>

### 5.1 Smarter Enforcement

Competition authorities should develop a quicker, more hands-on and more technology-sensitive approach than so far.

#### *Interim Measures*

This includes making use of the possibility to take **interim measures**, a tool that has been dormant so far. The Monopolies Commission is in favour of using interim measures more often.<sup>108</sup>

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<sup>105</sup> In European law this means Art. 101-109 TFEU and the Merger Control Regulation 139/2004/EC.

<sup>106</sup> In particular, the Unfair Commercial Practices Directive 2005/29/EC and the Advertising Directive 2006/114/EC. It may also be argued that fairness is a general precondition of the legal framework for the economy since transactions require the legitimate expectation of mutual trust of market actors. Cf. Wolfgang Fikentscher/Philipp Hacker/Rupprecht Podszun, *FairEconomy – Crises, Culture, Competition and the Role of Law*, 2013.

<sup>107</sup> Uwe Cantner, *Industrial dynamics and evolution – the role of innovation, competences and learning*, in: J. Drexl/W. Kerber/R. Podszun (eds.), *Competition Policy and the Economic Approach* (2011), p. 166.

<sup>108</sup> German Monopolies Commission, 68. Sondergutachten, *Wettbewerbspolitik: Herausforderung digitale Märkte*, 2015, p. 168 et seq.; cf. German Federal Ministry of Economics and Technology, *Weißbuch Digitale Plattformen*, 2017, p. 60.

Regulation needs to be targeted and smart in order to avoid “chilling effects” that may stifle competitive advances of companies. The regulatory approach should thus be incremental or evolutionary, cautious and open for different developments. Ultimately, regulatory interventions may fall foul of “presumptions of knowledge” (*Hayek*) if a specific market design is desired. Authorities shall create space for competition to evolve, but must not steer or even replace it.<sup>109</sup>

Having said that, it is obvious that the length of the Google Shopping investigation (seven years with court battles now ensuing) is bizarre. Enforcement needs to be quicker than before. Interim measures however can only be experimental, cautious and tentative. Such measure would mean a real “market test” (as opposed to the theoretical one foreseen in Art. 27(4) Regulation 1/2003) before declaring a measure binding for a longer time.<sup>110</sup>

Internal processes may also need revision in order to speed up investigations.

### *Chief Technologist*

Smarter enforcement would also entail a deepened understanding of digital markets and their business models. With a view to the role of technology in shaping markets (“code is the new law”)<sup>111</sup>, it seems necessary to institutionalise technological expertise in competition authorities. The Directorate General for Competition in the European Commission should install a “Chief Technologist” following the model of the “Chief Economist”. An expert in digital technology would temporarily fill the post and work with a “Chief Tech Team” to analyse technological barriers in markets, to design appropriate remedies and to help better understand business models. Such a Chief Technologist could also work on the project that Commissioner *Margrethe Vestager* placed on the agenda, namely “competition compliance by design”.<sup>112</sup> This concept means that the technological architecture or software may be programmed in a way that abusive or collusive behaviour may not happen.

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<sup>109</sup> Torsten Körber, *Analoges Kartellrecht für digitale Märkte?*, WuW 2015, 120, 131 f. gives some warning examples from the past.

<sup>110</sup> German Monopolies Commission, 68. Sondergutachten, Wettbewerbspolitik: Herausforderung digitale Märkte, 2015, p. 168.

<sup>111</sup> Cf. Lawrence Lessig, *Code and Other Laws of Cyberspace*, 2000.

<sup>112</sup> Margrethe Vestager, *Algorithms and Competition*, Speech, 16.3.2017, available at [https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/bundeskartellamt-18th-conference-competition-berlin-16-march-2017\\_en](https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/bundeskartellamt-18th-conference-competition-berlin-16-march-2017_en); cf. Simonetta Vezzoso, *Competition by Design* (November 28, 2017), available at SSRN: <https://ssrn.com/abstract=2986440>.

## *New Competences*

It may be worth to strengthen authorities for platform governance and consumer protection. While the European Commission can act upon classic competition law rules only, other aspects of fair business practices are left to the Member States. They react with different institutional designs. While some Member States have authorities that deal with issues of consumer protection, unfair dealings and competition law alike, Germany and Austria predominantly rely on private enforcement. This makes it difficult, from time to time, to find out what exactly is happening in black-box-businesses. Furthermore, the incentive to take a dominant company – like one of the Big Five (MAGAF) – to court over issues of unfairness may be very low for private parties. It should be considered to add competences for some authorities here or even to vest some regulatory powers regarding platforms into DG Competition on an EU level. If additional competencies in this field are seen as important, it may be sensible to entrust competition authorities that are not prone to over-enforcement and paternalistic protection.

## **5.2 Governance of Platforms**

The **governance of key platforms** needs to be monitored and controlled; the rights and obligations of platform operators need to be specified in a directive.

The governance of platforms has become a key question. The rights and obligations of platform operators need an update and a framework. This framework should specify rules of neutrality, transparency and liability. It should distinguish between different forms of platforms (open platforms and gatekeeping platforms, for instance)<sup>113</sup> and should take into account that markets may have tipped. With a view to the current uncoupling of risks (mainly with suppliers) and profits (with the platform operator to a large degree) it is justified to apply stricter rules to platform operators. Otherwise, the typical connection of profits and risks in competition would be broken.

The Commission's initiative on Fairness in platform-to-business relations is a welcome starting point.<sup>114</sup> From a competition perspective, new rules would need to guarantee that on gatekeeper platforms

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<sup>113</sup> Cf. Siemens, *The Role of Platforms for the Digitalisation of European Industry*, June 2016.

<sup>114</sup> Cf. EU Commission, *Fairness in platform-to-business relations*, Inception Impact Report, Ares(2017)5222469, available at [https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5222469\\_en](https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5222469_en). For an academic proposal cf. Research Group on the Law of Digital Services, *Discussion Draft of a Directive on Online Intermediary Platforms*, *Journal for European Consumer and Market Law* 2016, 164 ff. Most recently, Bam-

- suppliers can keep the customer interface in an unmitigated way,
- portability rules ensure switching to other platform operators, and
- data is accessible for all businesses, not just the platform operator.

### 5.3 Competition Law Reforms

The issues of the platform economy should also trigger substantive reforms in competition law.

#### *Market Definition*

Competition law needs to get away from traditional **market definition** that tends to produce artificial results. Traditional market definition (as the starting point of most competition law investigations) underestimates the integration of markets. It also makes enforcers concentrate on effects for a specific, narrowly defined product market (often price effects) while the wider implications for other markets or the whole competitive environment are disregarded.

The reasons for difficulties to define digital markets are threefold:

- more than one market is relevant with multi-sided platforms,
- the reliance on price based indicators is vulnerable because many digital services are zero priced, and
- boundaries between markets are fluid.<sup>115</sup>

The European Commission has already qualified free services as part of markets,<sup>116</sup> and the German legislator has put a rule into the Act to clarify this point.<sup>117</sup> Yet, practical difficulties remain – also for defining multi-sided markets – if authorities stick to the approach to come up with concrete numbers for market shares as the consequence of a sharp market definition. When

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berger and Lobel have developed a framework for distinguishing platforms and identifying competitive concerns that may guide further analysis, cf. Kenneth A. Bamberger/Orly Lobel, Platform Market Power, 32 Berkeley Technology Law Journal (2017), available at

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3074717##](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3074717##).

<sup>115</sup> Nicolai van Gorp/Olga Batura, Challenges for Competition Policy in a Digitalised Economy, Study for the ECON Committee (2015), p. 52.

<sup>116</sup> For example European Commission, 24.3.2004 – COMP/C-3/37.792 – Microsoft; General Court, 17.9.2007 – T-201/04, Slg. 2007, II-3601 – Microsoft; European Commission, 7.10.2011 – COMP/M.6281, paras. 10 ff. – Microsoft/Skype; European Commission, 3.10.2014 – COMP/M.7217 paras. 13 ff., 45 ff. – Facebook/WhatsApp.

<sup>117</sup> Section 18(2a) Act against Restraints of Competition in the 2017 version. Cf. Rupprecht Podszun, Unentgeltliche Leistungen, in: C. Kersting/R. Podszun (eds), Die 9. GWB-Novelle, 2017, p. 1.

a market is not defined properly, competition authorities may misjudge market power and the effects of a conduct.

The solution is to turn away from static tools like the SSNIP-test for market definition and instead to understand the exercise of market definition much broader.<sup>118</sup> Market definition is not an exercise to ultimately determine market power, but it is a fact-finding mission where all relevant information for assessing a case is assembled. From an institutional economic point of view, the market as an organisational form is a "social network" of actors that redistribute scarce resources within a certain order. Therefore, the roles of market players and the infrastructure (the order) within which they operate are aspects of the market. This order includes, for example, legal rules, market entry barriers, relations with other market participants or transaction costs. In this sense, the term "market" is understood as an organisational form of the distribution of scarce resources, which is defined by the transactions of the players on the one hand, and by the constantly evolving framework on the other hand. This definition makes it possible to take account of economic and competitive factors which are not static and not price-oriented. This market concept opens the analysis to all market forces, including free services, multi-sidedness and spill-over effects.

### *Assessment of Competitive Harm*

The focus of competition law enforcement should shift to **innovation barriers and technological lock-in effects**. Market power may be strengthened where technological barriers exist and lock-in-effects play a role. For instance, a company may not move its services to a competing platform if it had to adapt to the non-interoperable standards of the incumbent. A consumer may be bound to a platform due to a lack of practical solutions for portability. As pointed out above, a "more technological approach"<sup>119</sup> towards such issues may require a Chief Technologist Officer at the Directorate General for Competition.

The power of platforms is enhanced through **network effects, access to data and financial means**. These issues should play a much more prominent role in theories of harm. Network effects may lead to tipping situations, access to data may place an operator into a gatekeeper position and overwhelming financial means (as accumulated by MAGAF) allow companies to immun-

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<sup>118</sup> Cf. Rupperecht Podszun, The Arbitrariness of Market Definition and an Evolutionary Concept of Markets, 61 Antitrust Bulletin 121 (2016).

<sup>119</sup> Cf. Rupperecht Podszun, Kartellrecht in der Internet-Wirtschaft: Zeit für den more technological approach, Wirtschaft und Wettbewerb 2014, 249.

ise themselves against competition. The European Commission needs to be able to substantially challenge a merger like Facebook/WhatsApp.<sup>120</sup>

At present, competition authorities often use quantitative indicators such as concentration ratios, market shares, price levels, or profit margins to determine market power. Yet, in digital markets, the use of these (static) indicators does not always work. The German legislator recognised that market power in the digital age may be based on other factors than had hitherto been acknowledged. The list of criteria that convey market power has therefore been amended in the ARC. Five new criteria for the analysis of market power were introduced in Section 18(3a) ARC<sup>121</sup>:

- direct and indirect network effects;
- multi-homing and switching costs;
- economies of scale in connection with network effects;
- access to relevant data;
- innovation-driven competitive pressure.

These criteria allow a better grasp of the specific characteristics of platform markets, innovation markets and data-based business models. Their introduction into the law is a reminder to authorities and courts to carefully measure platforms to new standards. Such rules should be introduced on the European level as well, e.g. in Art. 2(1) of the Merger Control Regulation.

### *Merger Control Threshold*

Shootout acquisitions need to be stopped which requires a **revision of merger control rules**.

In particular, the European Union should follow the German example of setting a turnover threshold for merger cases based on the value of the transaction.

The Facebook/WhatsApp case<sup>122</sup> has shown that the classical approach may lead to distortions. When Facebook took over the messaging service WhatsApp for an impressive \$ 19 billion, notably the firm's biggest acquisition ever, the European Commission could not investigate the merger since the turnover thresholds of the Merger Control Regulation were not met. At the point of

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<sup>120</sup> On theories of harm in technology-enabled markets cf. Miguel Rato/Nicolas Petit, Abuse of Dominance in Technology-Enabled Markets: Established Standards Reconsidered?, 9 European Competition Journal 1 (2013).

<sup>121</sup> Cf. German Federal Cartel Office, The Market Power of Platforms and Networks, Working Paper, 2016; Carsten Grave, Marktbeherrschung bei mehrseitigen Märkten und Netzwerken, in: C. Kersting/R. Podszun, Die 9. GWB-Novelle, 2017, p. 17.

<sup>122</sup> European Commission, 3.10.2014 – COMP/M.7217– Facebook/WhatsApp.

the takeover, WhatsApp had 600 million users worldwide and thus EU-wide relevance but only \$ 10.2 million in turnover. If Britain, Spain and Cyprus which had apparently seen a competence had not voluntarily directed the case to the European Commission, the case could not have been reviewed on EU-Level.<sup>123</sup> If one of the world's most important communication services fails to meet the thresholds of European merger control, this is a massive failure of the design of the system.

The Facebook/WhatsApp case prompted the insertion of a new threshold in Section 35(1a) ARC in order to ensure that all competition-relevant cases remain within the scope of the thresholds of German merger control. In the Facebook/WhatsApp case the system had obviously failed.

This results in the risk of so-called "shootout acquisitions": potential competition is eliminated early by means of a purchase.<sup>124</sup> The financial means of a company like Facebook make such acquisitions possible.

A transaction-value based merger threshold is appropriate since merger control serves as a pre-emptive safeguard against concentrations that would significantly impede effective competition. If a company is able to achieve competitive positions that are only difficult to contest thereafter, solely due to its financial power, this must be a case for review. The procedure of merger control is intended to counteract such an emergence of market power in advance by means of formalised examination. Otherwise, companies run the risk that lengthy and painful abuse proceedings are instituted.

With a view to Facebook/WhatsApp it needs to be pointed out that the Commission did not intervene in the case on substance. Jurisdiction is one thing, yet it needs to be accompanied by a more hands-on substantive analysis as well. The failure to do so resulted in another proceeding against Facebook/WhatsApp in the aftermath of the merger review when the entities were fined for giving misleading information in the merger review process.<sup>125</sup> The details of that investigation make it obvious that a more technological approach is necessary.

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<sup>123</sup> Christian Koenig/Bernhard von Wendland, *The Art of Regulation* (2017) p. 29. The European Commission approved the merger. The European Commission may have underestimated the true value of data in this case, however. Arguably, the true value of the transaction lies in the merged entity's ability to gather real-time quality data at high velocity. That is further suggested by the price of USD 19 billion.

<sup>124</sup> Cf. Nicolai van Gorp/Olga Batura, *Challenges for Competition Policy in a Digitalised Economy*, Study for the ECON Committee (2015), p. 59; Rupprecht Podszun, *Update für das Kartellrecht, Kommunikation&Recht* 2017, supplement to issue 7-8, 39, 44.

<sup>125</sup> European Commission, 17.5.2017, Case M.8228 – *Facebook/WhatsApp*.

## 5.4 Consumer Awareness

Consumer awareness needs to be strengthened. In particular, **awareness for the non-neutrality of search results and for the use of data, algorithms and machine-learning** needs to be enhanced through **advocacy** or **transparency requirements**. Such requirements could consist in compulsory notices or certification according to consumer protection standards.

The delegation of consumer decisions to platforms and digital assistants is ubiquitous, yet consumer awareness for this loss of autonomy seems to be extremely low. Either, authorities start advocacy action in this regard, or companies need to be obliged to make it more transparent that and how they operate with data and algorithms. To foster a fair use of algorithms industry bodies and non-governmental organisations could be encouraged to devise certificates and standards for transparency and neutrality.

A first case for this may be the fact that search engines, social networks, comparison sites on the internet or digital assistants do not produce objective or neutral results. That may not be wrong, but the fact should be made transparent in order for consumers to know that a specific decision they take is based on parameters that were set by the operator. One must not overlook the fact that this constitutes both a major potential to steer economic behaviour as well as a limit of freedom. The discussion as to whether additional transparency obligations are needed in order to respond to this is in flux.<sup>126</sup>

## 5.5 Access to Data

The **free flow of data** is a prerequisite for innovation and variety in the digital economy.

It would counterproductive at present to introduce an exclusive data right. Instead the free flow of data and access to data should be strengthened by a bundle of means: First, the Commission should clarify the competition law limits to data exchanges. Secondly, it should ensure interoperability and portability frameworks. Thirdly, contractual solutions by the parties should be fostered. This may take the form of model contract terms or default contract rules. To solve access litigation in a speedy manner, including the issues of remuneration, the Member States should incentivise industry-led ombudsman-systems. Whoever claims access to data may turn to the ombudsman to find a solution for the problem, at least in cases where there is a presumption that data are essential to compete in a market. Competition law remedies may also help in ex-

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<sup>126</sup> See Heike Schweitzer/Thomas Fetzer/Martin Peitz, *Digitale Plattformen: Bausteine für einen künftigen Ordnungsrahmen*, ZEW-Discussion Paper No. 16-042 (2016) p. 10 et seq.

ceptional cases. For this purpose, data as the new, valuable commodity may be treated like an essential facility or an essential IP right. It should be born in mind, however, that the general competition law regime has not been particularly successful in opening up essential facilities for competitors on downstream markets. Thus, some data may need sector specific access regimes and be placed on open industry platforms.

Individuals who want to switch suppliers have the right to data portability from the GDPR. A similar rule should be introduced for machine-generated data. It needs to be supported by technical standards of interoperability and by a quick enforcement mechanism (with the ombudsman system). The IoT ombudsman could also act as a watchdog for competitive problems in the IoT, informing regulators of malfunctions of markets in this developing area.

## List of Abbreviations

AI .....	Artificial Intelligence
Art .....	Article
Asnef .....	Asociación Nacional de Establecimientos Financieros de Crédito
B2B .....	Business-to-Business
BGH .....	Bundesgerichtshof (German Federal Supreme Court)
BMVI .....	Bundesministerium für Verkehr und digitale Infrastruktur (German Federal Ministry of Transport and Digital Infrastructure)
BMW .....	Bayerische Motoren Werke
cf. ....	confer
CJEU .....	Court of Justice of the European Union
CNN .....	Cable News Network
COM .....	European Commission
DG Competition .....	Directorate-General Competition
DICE .....	Düsseldorf Institute for Competition Economics
EC .....	European Community
ECON .....	European Parliament Committee on Economic and Monetary Affairs
ECJ .....	European Court of Justice
ECLI .....	European Case Law Identifier
Ed. ....	Edition
eds. ....	Editors
e.g. ....	exempli gratia – for example
etc. ....	et cetera – and the other
et seq. ....	and what follows
EU .....	European Union
EuCML .....	Journal of European Consumer and Market Law
f/ ff. ....	following
FRAND .....	Fair, reasonable and non-discriminatory
GDPR .....	General Data Protection Regulation
GEAR 2030 .....	High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union
GPS .....	Global Positioning System
GWB .....	Gesetz gegen Wettbewerbsbeschränkungen (German Act against Restraints of Competition)
IBER .....	Insurance Block Exemption Regulation
i.e. ....	id est – it is to say that

IP .....	Intellectual Property
IoT .....	Internet of Things
kg .....	kilogram
Ltd. ....	Limited
MAGAF .....	Microsoft, Apple, Facebook, Amazon and Google
MPI .....	Max Planck Institute for Innovation and Competition
No .....	number
OECD .....	Organisation for Economic Co-operation and Develop- ment
p./ pp. ....	page/ pages
paras. ....	paragraphs
SSNIP .....	Small but significant and non-transitory increase in price
SSRN .....	Social Science Research Network
SWD .....	Staff Working Document
TEU .....	Treaty on European Union
TFEU .....	Treaty on the Functioning of the European Union
TOSCA .....	Total Operations Management for Safety Critical Activi- ties
US Senate .....	United States Senate
USD .....	US-Dollar
v .....	versus
Vol .....	Volume
WuW .....	Wirtschaft und Wettbewerb
ZEW .....	Centre for European Economic Research

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