



Rethinking competition in the Digital Economy

Competition Advocacy Studies



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INTRODUCTION

WHY ANALYZE THE DIGITAL ECONOMY FROM A COMPETITION PERSPECTIVE?

The world economy is rapidly becoming digital. Internet has transformed the conventional understanding of business structures, firm interaction and means for acquiring information, goods and services.¹ This has significantly impacted value chains and the way needs and tastes of consumers are met. The digital economy makes online communication, commerce, entertainment and work, among other activities, possible. Nowadays, references to the world’s largest firms do not involve oil or pharmaceutical companies, but the main technological giants such as *Google*, *Facebook*, *Microsoft*, *Apple* and *Amazon* instead (see Box 1).

Box 1. Top five U.S. firms by market capitalization				
	1900	2000	2010	2017
1	International Business Machines Corp.	General Electric Co.	Exxon Mobil Corp.	Apple Inc.
2	Exxon Mobil Corp.	Exxon Mobil Corp.	Apple Inc.	Alphabet Inc.
3	General Electric Co.	Cisco Systems	Microsoft Corp.	Microsoft Corp.
4	Bristol-Myers Squibb Co.	Wal-Mart Stores Inc.	Berkshire Hathaway Inc.	Amazon.com Inc.
5	Merck & Co.	Microsoft Corp.	General Electric Co.	Facebook Inc.
Source: Evans (2017). <i>Why the Dynamics of Competition for Online Platforms Leads to Sleepless Nights But Not Sleepy Monopolies</i> , p. 22.				

¹ Deloitte. *What is Digital Economy? Unicorns, Transformation and the Internet of Things*. Available at bit.ly/2sYUgxC.

This has led companies to define new strategies, business models and ways to compete in the face of the opportunities and threats posed by the digital economy. According to a 2017 survey by *Harvard Business Review*, close to half of the firms considered that their traditional business model would be obsolete by 2020. Notwithstanding, 86% of the respondents perceived market disruption as an opportunity and not as a threat to their businesses.²

Governments are not exempt from this reality and face important challenges and opportunities amidst the ever-growing importance of the digital economy. First, the need to foster the development of the various components of digital ecosystems. This includes infrastructure and competitive conditions for the supply of telecommunication services that enable the digital connectivity of a greater number of people and businesses. Second, the use of information technologies to improve their functions as well as public services, for example, through the simplification and systematization of bureaucratic procedures. Third, governments should generate conditions for the modernization and dynamism of markets in this new context, allowing consumers and firms to access and take advantage of the benefits of the digital economy while being vigilant of the harm it may bring about.³ All of this should happen without dismissing the fulfilment of other public policy objectives, such as consumer protection, the promotion of investment and innovation, security and privacy of information, including financial information that may have an impact on the countries' economies.⁴

Competition policy is not exempt from disruption. The digital economy's characteristics (discussed in this document) may lead to concentration in certain markets and even facilitate carrying out anticompetitive practices. Given this trend, there is some debate about the actions or strategies that should be followed: operate under the assumption that digital markets will be efficient through competition processes and therefore require minimum intervention; or regulate them because they are prone to lack competition, even before an anticompetitive practice is observed. In any case, the question as to whether current competition policy tools should be reconsidered or are sufficient to prevent abuse

² Source: Lawrence Wu's Conference during the 2017 *Jornada por la Competencia*, based on *Competing in 2020: Winners and Losers in the Digital Economy*, Harvard Business Review.

³ European Commission (2015). *A Digital Single Market for Europe: Commission sets out 16 Initiatives to Make it Happen*. Available at bit.ly/1OZXju9.

⁴ In fact, in a 2014 OECD survey on the 31 possible priority areas of the digital economy, information security and privacy were identified as priority areas. Source: OECD, "OECD Digital Economy Outlook 2015". Available at bit.ly/2F8q2KV.

of dominance and cartel activities, is relevant. When regulation is considered necessary, regulators must design rules that will not only allow the benefits of the digital economy to come about, but will also neutralize the power of companies to exploit their dominance and consumers' risks intrinsic to the supply of goods and services.⁵

Ensuring competition in digital markets implies challenges for agencies in two respects: i) fostering a regulatory environment that promotes competition and free market access in various productive activities in which companies offer goods and services with the help of digital technology and that compete with companies that abide by “traditional” business models, and ii) the enforcement of competition regulatory frameworks when these new firms break the law.

One highlight related to the first aspect is the controversy present in various countries on the prohibition, approval or regulation of transportation network companies' operation (such as *Uber* or *Cabify*). This debate provides competition agencies with the opportunity to promote legal frameworks that recognize these services as a valuable alternative for consumers.

The highest profile case related to the second point in 2017 was that of the fine imposed by the European Union on *Google* for 2.4 billion euros for its abuse of dominance as a search engine. According to the agency, *Google* provided an illegal advantage to products of its own corporate group over those of its competitors in search results. It is noteworthy that in 2013, the United States competition agency closed an investigation related to the same conduct (manipulating search results) on the grounds of insufficient evidence to fine the company.⁶

Giving different treatment to the same conduct in different jurisdictions does not prove that one strategy generates greater benefits to consumer welfare than others. This point is still under debate.⁷ The *Google* case is an example of lack of consensus when it comes to what strategy should be adopted by competition agencies to ensure competition and free market entry.

It is noteworthy that on February 1, 2018, the Mexican Federal Economic Competition Commission (COFECE) announced the initiation of an investigation into probable relative monopolistic practices (abuse of

5 Khan (2017). *Amazon's Antitrust Paradox*. The Yale Law Journal. Available at bit.ly/ziCbsVH.

6 Waters (2017). *Google Faces Local Antitrust Investigations in US*. Financial Times. Available at on.ft.com/zicm8XZ.

7 Shapiro (2017). *Antitrust in a Time of Populism*, p. 26. Available at bit.ly/ziociHU.

dominance) in the market for e-commerce platform services in Mexico. This is the first probe related to the country's digital market.⁸

Bearing these challenges in mind, on October 31st, 2017 COFECE hosted the 2017 *Jornada por la Competencia* (National Competition Day). The theme was **Mexico: Competition-related challenges in the digital economy**. This forum set the stage for COFECE to foster the debate and analysis on the way that companies compete for consumer preference in digital environments. Experts and relevant agents shared their understanding on the matter with the objective to better comprehend:

1. The characteristics of digital markets which imply positive and/or negative effects on the degree of competition and free market access.
2. The need (or absence thereof) to regulate markets and new activities that emerge from the digital economy and, in such cases, other public policy objectives that new regulation should strive to meet as it promotes innovation and competition.⁹
3. The challenges and scope of the competition legal frameworks to prevent and correct firms' conducts and anticompetitive market structures in this context.

This document takes some of the issues presented and discussed during the event as well as the deliberations presented in other forums and specialized texts as a starting point. The objective is to begin to outline the questions and challenges that arise in relation to competition policy in the context of the digital economy.

The document is organized as follows: this introduction defines the concept of digital economy and the scope of the document. Section 1 explores the main characteristics of business models in the digital economy and the way they hinder or incentivize competition. Section 2 takes on the question of whether digital markets should be regulated, and if this is the case, the challenge for policy-makers to not unnecessarily restrain competition. Section 3 outlines some challenges faced in the enforcement of competition policy in the context of the digital economy. The document closes with concluding remarks.

⁸ Source: Press Release: COFECE-006-2018. Available at bit.ly/2FEIey.

⁹ These aspects were discussed regarding the financial technology sector, also known as fintech, and the platforms for lodging services such as *Airbnb*.

WHAT IS DIGITAL ECONOMY?

In order to analyze the effects of the digital economy on the intensity of competition and free market access, and the implications they have on the enforcement of competition policy and the design of regulation, a definition of the concept of “digital economy” (for the purposes of this document) is necessary.

Digital economy can be defined as the economic activity that results from the millions of online connections among people, businesses, devices and processes. The heart of the digital economy is hyperconnectivity, which implies a growing interconnection between people, machines and organizations as a result of the Internet, mobile technology and the Internet of things.^{10,11}

The digital economy’s ecosystem is formed by three components:¹²

1. The *telecommunications infrastructure*: the installation and operation of telecommunication networks, including broadband, which enable local, national and international connectivity through transmission, storage and data processing services.
2. The *information and communications technology industries (ICTs)*: programming activities for the development of products that perform functions useful for users (software) and the assembly of electronic equipment (hardware) which allow users to execute and use the software. For example: consider a program that allows you to send emails (software) from a desktop computer (hardware) or an application that enables you to order a meal delivery (software) from a smartphone (hardware).
3. The *use and exploitation of the components described above by end users*: the use of infrastructure, software and hardware allows: i) individuals to improve their quality of life by accessing a greater variety of goods and services; ii) companies to offer the new products and services, as well as the increase efficiency in productive processes; and iii) governments to improve the provision of public goods and services and increase transparency of their operation, among others.

¹⁰ Deloitte. What is Digital Economy. Available at bit.ly/2sYUgxC.

¹¹ The Internet of things is a concept that refers to connecting any device to an Internet connection, for example: mobile phones, earphones, washing machines, lamps. Source: Morgan (2014). *A Simple Explanation of “The Internet of Things”*. Available at bit.ly/2F2cV1Y.

¹² CEPAL (2013). *The Digital Economy for Structural Change and Equality*, pp. 9 and 10. Available at bit.ly/2u4JNx6.

End users can benefit from the digital ecosystem if the regulatory framework and market conditions incentivize a greater deployment of infrastructure and a competitive interaction among the suppliers of digital connections, as well as innovation and the permanent development of software applications and hardware equipment.

However, this document does not delve into the functioning of telecommunications infrastructure, nor the technological determinants of the level of development of ICTs. The focus is on the third component: interaction among the *end users* (consumers and suppliers of products and services, as well as the government) that coexist in the digital economy.

Moreover, the focus is on the competition dynamics in the virtual or digital markets (online marketplaces). That is, the platforms¹³ on which products, services or content are acquired and/or supplied using a software application by means of a digital connection. Some virtual markets involve a great variety of products of public interest whereas others address specific consumer needs. This concept includes: search engines, online stores and platforms that facilitate the meeting of different interested parties, for example, those supplying a specific product, service or content to users wishing to purchase it.

¹³ For a definition on digital platforms see Box 3 in the following section.



COMPETITION IN THE DIGITAL ECONOMY

The digital economy has spurred new modes of competition to offer goods and services which have positively impacted economic growth in recent years, by reducing firms' costs and allowing them to be more productive, by reducing information asymmetries, expanding their geographic market, among others.¹⁴ Transactions in digital markets among suppliers, intermediaries and consumers may imply low or virtually null distribution costs. This is possible due to the commercialization of goods that previously depended on a physical medium, such as music, videos or information, and that today can be digitally transmitted. Similarly, there is a supply of digital goods with a marginal transfer cost close to zero, which implies that the main investment lies in product development; once this has taken place, each additional copy represents a minimum cost. In addition, ICTs have enhanced productivity of traditional industries by increasing computing capacity, by facilitating and reducing the costs associated to administrative work and even the production of goods and services.

The digitalization of the economy offers important opportunities to increase efficiency and promote new markets, allowing for the entry of new economic agents into the market. However, these virtues do not come about automatically. This section discusses certain characteristics inherent to digital markets that may intensify or hinder competition. The focus is on contributing to the debate on the positive and negative effects on competition in digital business by describing some particularities and comparing them to traditional markets. Throughout this section you will find boxes with summaries of the main concepts that impact competition and free market access in digital markets.

¹⁴ OECD (2012). *The Digital Economy*, p. 5. Available at bit.ly/2t7aBkG.

GEOGRAPHIC EXPANSION OF MARKETS: COMPETITION FROM DIFFERENT LATITUDES FOR WORLD-WIDE CONSUMER PREFERENCE

Unlike traditional markets, the distribution of digital services and content is often geographically unrestricted. Since users will frequently decide to purchase goods solely on the reputation of the seller or the platform that offers it, they do not need to physically inspect the good before purchase, which gives them access to a greater number of options.¹⁵ This has allowed, for example, a tourist to access a digital platform to rent a house from an owner without being acquainted and before reaching the tourist destination, based on the ratings granted by previous guests who have used the same platform; or an artist to sell his or her work all over the world, without involving agencies and logistics costs. This benefits both consumers and suppliers.

Consumers' search and comparison costs are reduced, which in principle allows them to make better purchasing decisions. In the digital economy, users can compare the conditions of suppliers in different cities and even countries with just a few clicks, which in turn allows the consumer to hire or purchase from the supplier that best suits her needs.

On the suppliers' side, there is access to a more diverse and greater number of potential customers. In addition, they face a greater variety of competitors in a wider geographical dimension. This encourages them to become more efficient and motivates them to better meet the preferences and needs of users, or even to specialize in a group of users. In this sense, the suppliers compete more intensely for the preference of consumers.

However, in some cases the legal framework or platform developers may seek to impose geographical restrictions on the supply of a good, service or content. For example, *Netflix* charges a different price and offers different content depending on the geographic region.¹⁶ While this is not necessarily detrimental to the competition process, many times these geographical differentiations do not respond to efficiency considerations but to intellectual property rights or other types of regulations applicable in diverse jurisdictions.^{17,18}

¹⁵ Ethan Lieber and Syverson Chad (2011). *Online vs. Offline Competition*, p. 8. Available at bit.ly/2FHxuow.

¹⁶ See discussion on "new pricing strategies" on page 63.

¹⁷ For example, restrictions to acquire financial services, such as insurance, in other jurisdictions.

¹⁸ For a discussion on the effects on efficiency of price discrimination, see: Inderst, Román y Shaffer, Greg (2009). *Market Power, Price Discrimination, and Allocative Efficiency in Intermediate-Goods Markets*. Available at bit.ly/2t7RiHL.

Thus, the geographic segmentation of consumers,¹⁹ by rule or decision of the supplier, could represent an obstacle for users from all over the world to access the same prices and contents in different regions. This would limit competition between a greater number of suppliers. An example of this, although not necessarily related to intellectual property, is the fact that, due to a legal restriction, *Google Maps* (one of the most widely used map systems in the world), cannot offer Chinese users the same quality and accuracy provided to the rest of the world. The reason: in China maps are considered a matter of national security, so all cartographic information generated must be sent to the Chinese Government to verify that it complies with the governmental geodetic reference system. This generates deficiencies in the maps presented by *Google* and other foreign suppliers; they are less precise, preventing them from competing on equal terms with local companies.²⁰

Additionally, the geographical expansion of the markets could imply a challenge of coordination between competition authorities of different jurisdictions, to detect, investigate and punish anticompetitive behavior. The wider the markets, the more likely it is that cases will arise that involve anticompetitive behaviors simultaneously in more than one country, or that conducts committed in one country have effects in another jurisdiction. In this regard, international coordination is needed to conduct the necessary investigation procedures (raids, subpoenas, information requirements, among others) to prove that an anticompetitive conduct has taken place in a country other than the one where the investigation is based.

Moreover, if the conduct had effects in several jurisdictions, sometimes several agencies initiate simultaneous investigations. In this regard, the interests of two or more investigations could be opposed and make inter-agency coordination difficult (for example, if a firm adheres to the leniency program in exchange for a reduction in possible sanctions in one country, but not in another). Furthermore, if there is no cooperation among agencies, they may have little incentive to investigate practices that also affect other jurisdictions. Therefore, inter-agency coordination and cooperation is relevant for cases in which the geographic scope is wider.

¹⁹ This is made easier through the use of Bigdata, see: “use of big data and algorithms: more information and easier comparisons of prices, services and quality” on page 29.

²⁰ Rabaza, López-de-Larrínzar-Galdámez, Salvador, Usón and Muro (2013). *Restricciones al trabajo con información geográfica online en China*. Available at bit.ly/2olewyT. Also see National Administration of Surveying, Mapping and Geoinformation of China (2002). *Surveying and Mapping Law of the People's Republic of China*. Available at bit.ly/2F6Pgcw.

How does the geographic expansion of markets favor competition?
<ul style="list-style-type: none"> ▪ Consumers have access to a greater variety of easily accessible options, which motivates suppliers to find new ways to satisfy their preferences. ▪ Suppliers may offer lower prices as result of savings in logistics (for example, the elimination of intermediaries).
How could it harm competition?
<ul style="list-style-type: none"> ▪ In some countries, domestic regulations on intellectual property and other types of regulations may lead to geographic segmentation, especially in the content market, which in turn could diminish competition among the suppliers in said countries. ▪ It may hinder the identification, investigation and sanction of anticompetitive conducts.

INNOVATION: MARKETS OPEN TO THE CONSTANT ENTRY OF NEW COMPETITORS

Innovation which disrupts, transforms or creates new markets is an important source of competition, but, in contrast to traditional markets, it is especially relevant in those that are digital.²¹

The traditional economy tends to display the use of similar business models by diverse companies in the same markets, which compete by differentiating themselves through variables such as the price charged for goods and services. Innovation in traditional markets tends to be incremental, meaning that improvements are marginal and occur within preexisting value networks (for example, in the automotive industry, switching from the disc brake system the anti-lock brake system).

In contrast, digital markets have incentives for potential competitors to constantly seek to change the market structure through disruptive innovation (see Box 2), that is, to become the agent who completely redefines products (or even entire industries) and the relationships among businesses and consumers.²² Digital markets experience the constant emergence of new ways of offering goods and services (which may compete with preexisting models or be completely new) and the efforts of entrepreneurs and business people are focused on generating added value where there was none, based on new business models.²³

²¹ European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p.25. Available at bit.ly/1HZHeBH.

²² Authority of the House of Lords, *Online Platforms and the Digital Single Market*, p. 30. Available at bit.ly/2ozy8FV.

²³ This may be considered as such because in highly innovative markets, competition is focused on gaining control of the market and not on competing in the market. See OECD (2002). *Merger Review in Emerging High Innovation Markets*, 2002, p. 21. Available at bit.ly/2CSFFnB.

Box 2. Disruptive innovation

Disruptive innovation provides consumers with a novel value proposition or even creates a new market, displacing other technologies and existing business models. Generally, firms that achieve disruption through innovation can eliminate intermediaries, reducing unnecessary costs and/or evading regulation or costly taxes, thereby gaining comparative advantage with respect to other competitors.

Disruption is a process:

- *First phase:* before innovation, incumbents (established firms) tend to improve their products to cater to their more demanding customers (because of potential of profitability) and ignore or exceed the needs of certain consumer segments. This provides new companies with an opportunity to break into the market to satisfy the latter segments through innovation, greater functionality and lower prices. The incumbents, in principle, do not respond vigorously, because they prefer to focus on the more profitable niches (the most demanding customers).
- *Second phase:* the entrants offer incumbent's "average" customers the functionality they demand while keeping the advantages that made them attractive in the beginning.

Disruption happens when average customers adopt the innovative firm's products and services in mass. The theory of disruption predicts that when a new entrant is able to stay ahead of the incumbent firm by offering better prices and products, the latter will accelerate its innovation process to defend its business.

Source: Christensen (2015). *What is Disruptive Innovation?* Harvard Business Review. Available at bit.ly/1HT2VUC.

In digital markets, leveraging innovation is short-lived, since the threat of the next best thing is ever present. Therefore, all companies, no matter their size, must be prepared for unexpected change from new disruptors.²⁴ Proof of this is the constant emergence of digital platforms that connect suppliers with consumers of goods and services, where the disruptor or winner in a certain round may be completely displaced in the next. It is less difficult to enter the digital economy with a new business model or technology than to grow and survive in it. An example of this are firms such as *Facebook* and *Google*, which replaced *MySpace* and *Altavista*, the first main online social network and search engine, respectively.²⁵

²⁴ Nunes, Bellin and Lee (2016). *Thriving on Disruption*, p. 6. Available at accntu.re/zGQXEof.

²⁵ The Economist (2018). *How to Tame the Tech Titans: The Dominance of Google, Facebook and Amazon is bad for Consumers and Competition*. Available at econ.st/2rkjB4R.

Box 3. Digital platforms

Digital platforms offer goods, services or content from different suppliers to consumers in a same space. They mediate between users and suppliers through the Internet, which allows gathering a greater amount of consumer information. Application stores (where users may purchase or freely download applications for their devices) such as *Apple's App Store*, serve as an example. Other digital platforms include *Mercado Libre*, *Amazon*, *Netflix*, *Skype*, *Facebook*, among others.

There are three types of platform-based business models:

1. *Subscription model*: in which there are only two parties involved (a supplier that offers a service and a group of users that pay a subscription to access it). Generally, these services are offered through ISPs (Internet service providers). For example: *Netflix*, in which users watch movies or series in exchange for a monthly fee; or *Spotify*, where users may pay a subscription to have free access to music and can download contents.
2. *Advertisement model*: services are offered without direct payment on behalf of the consumer because the platforms obtain revenues indirectly through advertisement and commercialization of information to increase the effectiveness of the advertisement or for other purposes. For example: *Facebook* or certain online newspapers.
3. *Open access model*: the platform functions as a market by connecting the suppliers of goods or applications with users, who may or may not have to incur in a cost for the latter. The platforms may charge suppliers and/or users for buying/selling goods or applications via the platforms. For example: The *App Store* connects content developers such as *Twitter* or *YouTube* with users that download the applications

Source: European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p.22. Available at bit.ly/1HZHeBH.

For this reason, firms that break into markets are often constantly innovating to avoid being displaced by a new disruptor. *Amazon* is an example because it continuously expands the range of products it offers: previously, the company only sold electronic books; today, they even offer financial services.

This constant threat promotes competition among firms, forcing them to become more efficient and constantly innovate to preserve and improve their position in the market. There are several types of new or small companies, created through disruptive innovation, which have recently achieved growth and successfully challenged large established companies: *Airbnb* as an alternative to certain hotels; platforms that connect people who can offer loans to entrepreneurs and that become an alternative to traditional forms of obtaining finance; or platforms that offer specialized professional services, challenging big consulting firms.²⁶

²⁶ Christensen (2015). *What is Disruptive Innovation?* Harvard Business Review. Available at bit.ly/1HT2VUc.

The accelerated dynamics of creation in digital markets (and their positive impact on firm differentiation to offer greater variety of products at better prices) implies that it is important to maintain firm incentives to invest and continue the innovation cycle. These incentives may be diminished in different ways. On the one hand, a deficient regulatory design may inhibit innovation. This may happen, for example, when a new business model, such as interurban transport in medium-sized vehicles via mobile applications, decides not to enter the market because there is a risk authorities will try to regulate them according to the existing legislation applicable to traditional interurban transport. Existing rules may require, for example, minimum dimensions for vehicles that are not compatible with the profitability of the business model. This favors the market position of traditional suppliers (or incumbents) to the detriment of other options which could be made available to consumers via digital markets.

Alternatively, an agent (for example, the first innovator to reach the market, or create a new market) may acquire a considerable market share or even become the only participant (*the winner to take all*).²⁷ These situations are conducive to scenarios in which a business model or product and/or innovative service displaces its competitors definitively and acquires market power. This, from a competition stance is not necessarily undesirable, as long as the prevailing supplier is the most efficient and attractive for the consumer, and there are no artificial entry barriers for possible competitors. Notwithstanding, a disruptive firm may abuse the market power it acquired to hinder competitors' market access and charge higher prices. Therefore, it is important for competition authorities and regulators to maintain the market's contestability.

Box 4. Winner-take-all

Winner-take-all refers to the case in which a firm generates considerable disruption in the market or creates a new market, which allows for the creation of an ample consumer base or the collection of great amounts of information, among others. This could confer market power, and reduce the possibility of other suppliers entering the market. This effect is more likely to be observed in the presence of network effects and switching costs (see discussion below). Therefore, its analysis gains relevance in the context of the digital economy.

Source: OECD (2012). *The Digital Economy*, p. 5. Available at bit.ly/2t7aBkG and European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p. 8. Available at bit.ly/1HZHeBH.

²⁷ European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p. 53. Available at bit.ly/1HZHeBH.

How does disruptive innovation favor competition?
<ul style="list-style-type: none"> ▪ Disruptive innovation allows small entrepreneurs to compete with larger companies by promoting better purchasing conditions and the creation of new markets. ▪ A context of disruptive innovation motivates potential competitors and incumbents to create new business models and transform existing ones to win (or not lose) market shares. ▪ Digital platforms give suppliers more flexibility to decide when and how to provide services or goods better suited to accommodate the needs of each consumer. ▪ Platforms reduce the cost of matching buyers and sellers, which expands markets by allowing a greater number of suppliers to serve new consumers.
How could it harm competition?
<ul style="list-style-type: none"> ▪ Given <i>the winner-take-all</i> effect (either as a result of being the first to market or for successfully disrupting it); a firm may acquire greater market power and use it to block market entry or the permanence of its competitors in an anticompetitive manner. ▪ The existence of barriers (regulatory or otherwise) that hinder potential competitor's market access, may provide few incentives for the companies that have market power to increase their efficiency through innovation because there will be a low threat of competition.

NETWORK EFFECTS: INCREASED VALUE FOR USERS AND/OR HIGH MARKET CONCENTRATION

Network effects are the main source of value for several business models or digital platforms.

It is intuitive: the more users a social network such as *Twitter* has, the more attractive it is to its users (as well as to those who advertise in it); or the more applications that exist for *iOS*, the more consumers *Apple* will have. Network effects are not exclusive to digital markets, yet they are particularly important to these, because it is easier and less expensive to make the networks grow.²⁸

Network effects generate benefits for users and suppliers. The former enjoy the increased value and the usefulness of a product or service and the latter have access a greater number of users that may in turn generate greater revenue. This is a characteristic of two- or multi-sided markets, in which the benefits for one side depend on the number or participants on the other. Therefore, as the network grows, its profitability grows.

²⁸ Network effects are also present in traditional markets, such as the market for telephone services or transportation.

Box 5. Network effects

Network effects emerge when the value of a product for users increases as the number of users increases. That is, having more consumers in a network makes the service or good supplied more useful and valuable for users and network developers. There are two types of network effects:

Direct: when the increase in use of a specific service increases its value for other users. That is to say, from the user's point of view, the network is more valuable when more people desire to be in the same network. For example: *Facebook*, *Instagram* and other social network platforms. Direct network effects exist when users exercise the power to attract potential new users.

Indirect: these exist when different user categories coexist on a single platform, for example, a group of suppliers and a group of buyers. The usefulness of the network for users on one side of the market increases with the number of users on the other side. Therefore, the indirect effects are relevant for two- or multi-sided markets. For example, the *eBay* platform has more value to sellers in as much as it attracts potential consumers; conversely, the more sellers that use the platform, the greater value it has for consumers as they find more options. *Facebook* also enjoys indirect network effects: the more users it has on its social network, the more advertisers will be interested in hiring its publicity services.

Source: French Council of Economic Analysis (2015). *The Digital Economy*, p. 3. Available at bit.ly/2oHTRLq.

However, network effects can also hind market competition. For example, they may generate a *winner-take-all* scenario (see Box 4). In such cases, even with new suppliers with business models that offer alternatives to the network, they would have to incur in the costs of generating and expanding their network, otherwise, they would be less attractive to users, which would hinder entrants challenging the *winner*.

If the *first to arrive*²⁹ in the market or the first to significantly transform it becomes the *winner* (see Box 4) and attracts a sufficiently ample number of users, the possibility of new competitors entering the market might be reduced. This is not necessarily harmful, because when a true threat of entry by other disruptors exists, so does the incentive faced by the sole participant to constantly improve the service it supplies to avoid entry and displacement by another innovator.

Still, given the existence of network effects a possible scenario may involve a new platform, which improves upon the prevailing one, not being able to grow or even enter the market due to the critical mass of users that the established platform has and the lack of mobility by users. This raises the question as to what characteristics a new platform should have for users to make use of it, and how likely it is that a platform may be able to offer such characteristics.³⁰

²⁹ First to arrive or *first mover* is a concept used to refer to the advantage a company obtains with respect to its adversaries in the market. This may imply greater profit margins and even a monopolistic position. In digital markets, this may lead to becoming the *winner*.

³⁰ For a discussion on the topic, see: Jean Tirole y Jean-Charles Rochet (2004) Available at bit.ly/2o8iWRC; or Evans (2016).

Moreover, in multi-sided markets where network effects are present, the services offered are often free for certain user categories, that is, for one (or more) side(s) of the market (see Box 6). For this reason, in markets where more than one group of users participate, it becomes more relevant to understand the price structure (that is, which users pay for what) than the level of prices as such. Variables such as quality, functionality and some other platform characteristics become relevant in these markets, in comparison to the prices themselves on some sides of the market. In other words, firms may compete in characteristics other than price.³¹

Box 6. Multi-sided markets

Multi-sided markets are platforms used as a meeting point among two or more groups of agents (consumers and/or suppliers). This type of platform is characterized by being composed of two or more groups of users that benefit from their interaction, but who would not enjoy this benefit unless an intermediary or catalyzer (the platform) enables their interaction. An example of this is *Uber*: on one side the consumers, on the other side the drivers, whom would otherwise have a difficult time finding each other without the platform.

Multi-sided markets are characterized by displaying network effects (see Box 5). In our example, the more consumers the *Uber* platform has, the more attractive it becomes to drivers that offer their services. Likewise, the more drivers there are, the more interest consumers will have in using the platform to demand the service. In the context of the digital economy, the development of technological platforms allows for the emergence of new multi-sided markets.

For this reason, keeping all sides interested is instrumental to the success of the platform (if one side's interest fails, the entire platform may fail). To achieve this, the pricing strategy (that is, defining how much each side of the market should pay and why) is fundamental. By lowering its price (or even charging a below cost or zero price), one side of the market can be attracted, which in turn attracts the other side of the market (the one that makes the profit) which may be charged a higher price. Therefore, if several platforms cease to charge a group of users, they compete for their preference in other ways, such as: quality, data protection, functionality, among others. For example: platforms to search for hotels, which generally do not charge the consumer a commission, but do charge hotels, compete by getting hotels to offer lower rates on their own platform compared to those offered on other platforms with which they compete.

³¹ In this sense, as opposed to conventional suppliers, Internet firms get their users to produce value. Economists have difficulty determining how much users actually pay for these services which are “free” in monetary terms, because on many occasions, the users are unaware of the value of their personal data. For additional information see: The Economist (2017). *The ‘Free’ Economy Comes at a Cost. But Economists Struggle to Work out how Much*. Available at [econ.st/2vCgHFv](https://www.economist.com/2017/02/24/vCgHFv).

Box 6. Multi-sided markets (cont.)

Generally, the models known as **business-to-consumer** (B2C), such as *Uber*, *Airbnb*, *Expedia*, among others, come to mind when two- or multi-sided markets are mentioned. Notwithstanding, several types of models exist. **Peer-to-peer** (P2P) networks enable the exchange among users of the same category without the mediation of a centralized agent. *WhatsApp* is an example of this type of platform. **Business-to-business** (B2B) models, such as *Facebook* or *Google* sell advertisements (based on consumer information) to other companies. *CompraNet*, the platform used for public procurement by the Mexican government is an example of the **business-to-government** (B2G) model.

Sources:

Jean Tirole and Jean-Charles Rochet. *Two-Sided Markets: An Overview*, p. 2. Available at bit.ly/2o8iWRC; Krishan, Smith and Telang, (2003). *The Economics of Peer-to-Peer Networks*. Available at bit.ly/2GR4suE; Rania Nemat (2011). *Taking a Look at Different Types of e-Commerce*. Al-Azhar University. Available at bit.ly/2D1oq3G; Collyer, Mullan and Timan (2017). *Measuring Market Power in Multi-Sided Markets*. OECD. Available at bit.ly/2F41kzr.

Switching costs are another factor that can reduce the entry of competitors (see Box 7). The more expensive it is for a user to switch networks, the less likely it will be for a new platform to become attractive. These costs can arise when, for example, the user has provided a great deal of information, which will allow the company to fine-tune and customize the content, products or services offered to users, or if there are costs associated to learning how to use the alternative network.

Box 7. Switching costs

Users incur in **switching costs** when changing from one business model, platform or network, to another. They involve the time invested in learning to use the platform, re-entering the information collected by certain platforms, or the loss of information due to incompatibility, among others. When users want to change suppliers, the existence of switching costs can reduce their momentum to do so.

Source: OECD (2012). *The Digital Economy*, pp. 8 and 9. Available at bit.ly/2t7aBkG.

At first glance, it seems that digital markets have the tendency towards the existence of lower switching costs. Consider, for example, platforms for electronic messaging or product sales, in which consumers might, at least at first glance, switch easily. Attention should therefore be paid to the elements that may generate switching costs in digital markets. As discussed further on, the interoperability among different platforms (which on many occasions depend on the firm's will) and the accumulation of information on behalf of a company may make it more costly for a consumer to switch platforms.

Hence, network effects and switching costs can “block” users from migrating to other platforms.^{32,33} It might be relevant to identify and eliminate switching costs artificially created by firms (such as those that hamper personal data transfer between platforms to deter change), and to foster an environment with the least possible costs to user mobility.

How do network effects benefit competition?
<ul style="list-style-type: none"> ▪ They increase the value of a service or product for users: a greater concurrence of users makes the platform more attractive for other users, increasing its value. ▪ Network effects encourage firms to become efficient and attractive to consumers, with the objective of growing their network.
How could they harm competition?
<ul style="list-style-type: none"> ▪ They may favor higher concentration because a winner may reduce the possibility of other competitors entering the market and challenging their market power. ▪ If “switching costs” are high for users, user mobility is limited and therefore the possibility of new entrants achieving the critical mass to be competitive is reduced.

INTEROPERABILITY: WHEN DIVERSE PLATFORMS AND DEVICES COEXIST TO EARN USERS’ PREFERENCE

Interoperability allows platforms and applications created by different developers to connect and communicate among each other. The greater the interoperability among platforms, the greater the value of products, services and content offered on them. This occurs because interoperability facilitates users’ access to a greater range of functions, options, consumers, suppliers, platforms, among other benefits. For example, the more complementary products (headsets, cables, chargers) that a user can connect to her computer, the more valuable these, and the computer itself, become to the user

The developer determines the degree of interoperability her platform or technological component has.³⁴ She evaluates the convenience of sharing technology with other developers that compete in the same market or related markets, based on the profits that may be obtained under each cir-

³² See discussion on interoperability below.

³³ OECD (2012). *The Digital Economy*, p. 9. Available at bit.ly/zt7aBkG.

³⁴ This document assumes that there are no technological barriers that could impede a developer from offering the desired degree of interoperability.

cumstance. Developers have incentives to cooperate and facilitate the development of complementary products because interoperability increases the attractiveness of the product for consumers.

Users prefer the option of using several platforms at the same time, specifically when none offers complete satisfaction, especially when they are free (multi-homing).³⁵ Hence, consumer welfare increases when they are not forced to use only a certain platform. Consumers probably prefer to choose among a variety of platforms supplying similar services to install in their phones. For example, many people install and use more than one search engine for hotels and/or plane tickets. Similarly, suppliers prefer to have presence on more than one platform, as this improves their chances of finding consumers. Adding to the previous example, many hotels offer their rooms on several search platforms.³⁶

Box 8. Multi-homing

Multi-homing refers to a user's capacity to access the same type of service from different competing platforms, with the objective of maximizing the benefits of network effects.

The suppliers of a good or service can benefit from multi-homing. For example, if a driver has access to offering services on two different and competing platforms (such as *Uber* and *Cabify*), she will have access to more customers. In the same line of thought, if a person advertises an apartment for rent on different platforms such as *Metros Cúbicos*, *Dada Room*, *Trovit* or *Segundamano*, the result might be finding a tenant that better fills all the requirements in less time.

Multi-homing may also benefit consumers. For example, a person that uses different email services such as *Gmail*, *Hotmail* or *Yahoo*, may have a greater capacity to store messages or diversify the types of messages received in each account. A person that uses several video platforms (*YouTube*, *Vimeo*, among others) has access to a wide range of content.

Source: OECD (2012). *The Digital Economy*, p. 8. Available at bit.ly/2t7aBkG; European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p. 9. Available at bit.ly/1HZHeBH and Platform Business Firms (2016). *Durability of Network Effects – Importance of Multi-homing Costs*. Available at bit.ly/2COAEwl.

This forces developers to constantly innovate to avoid losing consumers to a compatible platform. An added benefit is the lowering of entry barriers for smaller developers due to interoperable products or platforms. Therefore, interoperability and multi-homing can potentially intensify competition in digital markets.

³⁵ Winston and Pénard Thierry (2015). *Regulating Digital Platforms in Europe, a White Paper*, p. 13. Available at bit.ly/2oGxmGo.

³⁶ Pil Choi Jay (2012). *Bundling information goods*. *The Oxford Handbook of the Digital Economy*, p. 295. Available at bit.ly/2oBtW55.

Nevertheless, some agents may have incentives to limit interoperability with the purpose of diminishing competition in the relevant market or the related markets they participate in.³⁷ For example, a company that has significant market participation in software development may design a program that is only compatible with computers it manufactures itself. At first glance, this may seem counterintuitive because it may reduce software sales, but, if their software is highly desirable (and difficult to replace) for a group of consumers, it implies a *de facto* displacement of competitors in the market for the sale of computers. In terms of competition, the problem stems from a firm having substantial market power (for example, in the market for software development), and abusing it to displace their competitors in a related market (sale of computers). This constitutes an anticompetitive practice according to regulations in several countries, including Mexico. In 2009, the European Commission fined *Microsoft* for pre-installing *Internet Explorer* in its *Windows 95* system, creating a presence in 90% of personal computers, which translated into a competitive advantage over other web browsers. Even if *Microsoft* did not limit the operability of other browsers in its operating system, it did reduce the probability that users would switch providers.³⁸

Moreover, in markets where network effects are present, firms may have incentives to initially offer high interoperability for their products and services and/or allow multi-homing with the purpose of attracting many consumers and creating an ample network, and may subsequently reduce interoperability knowing that their users would have few incentives to switch networks. For example, a transportation network platform may initially allow their drivers to offer their services on several platforms, in order to create an ample network of automobiles with drivers. Once this is accomplished, they may have incentives to ask drivers to refrain from offering their services on competing platforms. If the company's consumer network is sufficiently extensive, drivers will not have an incentive to change networks and will prefer yielding to exclusivity.

³⁷ European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p. 26. Available at bit.ly/1HZHeBH.

³⁸ Keizer (2009). *EU: Microsoft 'Shields' IE from Competition*. *Computer world*. Available at bit.ly/2t8Swmc.

How does interoperability favor competition?
<ul style="list-style-type: none"> ■ The value of a good increases as its interoperability increases. This provides firms with an incentive to innovate and cooperate to the benefit of the consumer. ■ Multi-homing broadens the size of markets by allowing consumers to choose among more products.
How could it harm competition?
<ul style="list-style-type: none"> ■ Dominant agents may limit interoperability to reinforce their dominant position by generating a network of captive users or to displace competitors in other markets.

USE OF BIG DATA AND ALGORITHMS: MORE INFORMATION AND EASIER COMPARISONS OF PRICES, SERVICES AND QUALITY

In recent decades, the digitalization of the economy and growing computational capacity through more sophisticated algorithms, have made it easier to generate, collect and process large amounts of information (Big Data). Consumers have grown accustomed to receiving “free” services in exchange for providing firms with great amounts of personal information.

Websites collect information on what type of device is being used, the IP address and personal data such as location, gender, occupation and interests. Some platforms can collect information on users’ behavior, for example, their Internet activity, the number of visits to a website and their purchases.³⁹ Information is a valuable commodity for the efficient supply of goods and services. This gives way for applications such as Foursquare or Yelp to recommend places for users to visit based on their location, and allows *Netflix* to recommend series considering a user’s preference according to location or the series previously viewed by the same user.

Furthermore, information in the digital economy does not only become currency on platforms that are “free” in terms of a monetary cost, it generates a market. For example, from January to February 2017, *Facebook* charged advertisers \$4.65 for each user that received the publicity based on an analysis of their possible preferences.⁴⁰

39 Lerner (2014). *The role of “bigdata” in online platform competition*, p. 8. Available at bit.ly/2uCMLIU.

40 The Economist (2017). *The “Free” Economy Comes at a Cost. But Economists Struggle to Work out how Much*. Available at econ.st/2vCgHFv.

Box 9. Big Data

Big Data is a concept that refers to the information obtained by small and large companies that provide digital services, from consumers and/or their competitors and which is valued in the market, be it by the firms, users, competitors or companies in other markets.

Big Data has four fundamental elements:

- **Volume:** the amount of collected information is such that it is measured in gigabytes and terabytes.
- **Variety:** refers to the diversity of the information that can be collected, such as age, address, purchasing power, gender, among others.
- **Velocity:** refers to the speed at which the information can be collected. For example, some applications, such as Waze, obtain real time information on traffic conditions.
- **Value:** the value of information has a causal relation with the previous three characteristics. For example, volume and variety of information can help a company to make better business decisions. In exchange for the promise of value, firms increase the volume and variety of information.

Sources:

OECD (2016). *Big Data: Bringing competition policy to the digital era*, p. 5. Available at bit.ly/2uA6ddK; and Competition Bureau (2017). *Big Data and Innovation: Implications for Competition Policy in Canada*, p. 7. Available at bit.ly/2oL8HAu.

Information requires processing for it to have value and to reap its benefits. Firms will increasingly differentiate according to their capacity to process and exploit data.⁴¹ In this sense, there have been significant developments: in recent decades, a greater number of companies can collect, store and exploit information through algorithms. These may be used by tech firms as well as others. Recently, algorithms have been used by companies to:

- **Predict:** some algorithms calculate the probability of occurrence of an event, based on the analysis of a large amounts of information collected in real-time or historic information. Algorithms may therefore be used, for example, to estimate demand, price changes, consumer behavior and their preferences, exchange rates and even natural disasters. This allows firms to improve their decision-making processes more efficiently and to develop innovative services.
- **Optimize business processes:** some algorithms allow businesses to have competitive earnings by reducing their production or transaction costs, by helping them, for example, to know when a farmer should use an irrigation system or even how to segment their consumers according to price.

⁴¹ Tirole (2017). *La economía del bien común*. Taurus, p. 434.

Box 10. Algorithms

An **algorithm** is a sequence of logic commands executed in an exact order to carry out a certain task, for example, a food recipe or solving a mathematical problem. Technological advance has led to the development of Artificial Intelligence, allowing computers to solve increasingly complex problems, and even make more efficient predictions than humans.

Source: OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, p. 6. Available at bit.ly/2sj5ZmX.

This may benefit consumers. The use of Big Data through better algorithms may diminish the information asymmetries among suppliers and customers. On the one hand, by having more information, consumers may more easily compare costs, quality and delivery times. Therefore, they may take decisions that better suit their needs. Given the considerable number of options and the diverse sources of information available to consumers, and considering the limited time they have to process and understand the information, the value of platforms that best adapt to their needs and that help connect them to suppliers, increases. Therefore, as the costs of traditional transactions diminish (such as transportation and custom's costs, etc.), firms' abilities to compete through lower costs of signaling, presentation and selection, become more relevant. Therefore, the sophistication of algorithms and platforms to connect consumers with sellers becomes an important form of competition.⁴²

On their side, suppliers may use information to get to know their competitors better and react to their strategies, become more efficient in their processes, improve production decisions, define their supply conditions more effectively, and even make better decisions on whether or not to enter a market. They may also offer services or content that better suit their potential consumers based on the information they have on consumer preference, purchasing power and needs. Furthermore, other companies feel pressured to also improve the provision of their services or the supply of their goods through the use and analysis of information through algorithms, favoring productivity of sectors.

It seems that as the cost for consumers and suppliers to collect and analyze useful information diminishes, there would be more incentives for the latter to compete. However, Big Data and the development of algorithms might limit competition in several ways including, but not limited to, the following: i) information might become a barrier to entry, ii) it may be used to carry out practices of abuse of dominance; iii) it may ease collusion.⁴³

⁴² Ibidem, p. 411.

⁴³ These three aspects will be described in the following paragraphs and fully addressed in Section Three of this document.

First, the fact that one or a group of firms have a significant amount of information on a certain market variable may become an obstacle for new companies to enter a market and compete. If a company has information that others cannot access or easily replicate and that is valuable to competition (such as consumer trends, consumer location and their preferences accordingly), potential competitors may be blocked from entering the market. The use of the data may incite consumers to decide to repeatedly purchase a good or service from a certain supplier, given that these may be offered in ways that better suit their taste. This may translate into a *lock-in effect*.⁴⁴ Anticipating that certain suppliers have sufficient information on consumers to offer a good that almost fully satisfies their preferences, potential competitors may decide not to enter the market or fail if they try. This implies that information may take on characteristics similar to those of an essential facility (or essential input) because, in certain circumstances, not having access to it may block new companies from entering the market or competing under equal circumstances.⁴⁵ This would diminish competitive pressure on the existing suppliers, thereby giving them greater market power.

Second, firms may use algorithms to restrict and monitor their platform users' decisions in the next link in the productive chain. Thus, algorithms can become a means to facilitate abuse of dominance. For example, a retailer with substantial market power that desires to set a resale price for a product to displace competitors, may use an algorithm to monitor when a salesperson uses a platform to offer a lower price to the end consumer, and exert pressure so that the salesperson aligns the price offered with the recommended price.⁴⁶ Algorithms may also become a medium to implement aggressive pricing strategies (fixing prices below their cost at certain moments) to block other companies from competing, and eventually push them out of the market.⁴⁷

One example is *Amazon* in the market for electronic books (e-books) and reading devices (*Kindle*) in the United States. Before launching *Kindle* in 2007, *Amazon* lowered the prices of the bestsellers significantly below

44 European Parliament (2015). *Challenges for Competition Policy in a Digitalised Economy*, p. 33. Available at bit.ly/1HZHeBH.

45 Essential facilities (or essential inputs) are elements (such as infrastructure, networks, rights, among others) that are fundamental for the production of other goods and services. They have the characteristic of not having a substitute, nor can they be reproduced. For further information on essential facilities (essential inputs), see Book II, Chapter V, Section III of the Federal Economic Competition Law. Available at bit.ly/2GTauXo.

46 OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, p. 16. Available at bit.ly/2sj5ZmX.

47 Ibidem, p. 19.

the price of printed books. Two years later, *Amazon* sold 90% of the electronic books in the market. Therefore, to have access to books at low prices, clients would buy a *Kindle* (that initially may have even sold at a price below cost). Moreover, with the information that *Amazon* collects from their customers, it could learn about their preferences, habits, tastes in literature, willingness to pay, and use this Big Data to recommend and offer personalized discounts. This combination may generate a *lock-in effect* that makes it more difficult for users to switch hardware (from *Kindle* to another device) and online book stores.⁴⁸

Third, firms may use the information to collude with competitors.⁴⁹ The use of algorithms might create new ways to coordinate that were not possible in the past (this will be further discussed), because they allow for manipulation and use of information.⁵⁰ Algorithms may allow companies to monitor their competitors' prices to coordinate with them and even allow for the monitoring of collusive agreements by automatically collecting information from all the cartel members, identifying the deviations from the agreed-upon price.⁵¹

Therefore, greater transparency is desirable regarding the data firms obtain from their customers and how it is used, as well as clarity on its portability. That is, that the users remain the owners of their information and may transfer it in a less costly manner between suppliers, avoiding limitations to consumer options through the use of information.

Because of the considerations made in the last few paragraphs, a discussion on the need to regulate the use of information is worthwhile. In May 2016, the European Commission approved a new directive to protect citizens regarding the use of their personal data, which will enter into force in May 2018. This considers, among other issues, mechanisms to facilitate the portability of personal data and give users the right to retrieve personal information they provided to a service supplier, so it can be transferred to a different supplier.^{52,53}

48 Khan (2017). *Amazon's Antitrust Paradox*. The Yale Law Journal. Available at bit.ly/2iCbsVH.

49 OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, p. 18. Available at bit.ly/2sj5ZmX.

50 For more information on the new forms of collusion that may emerge with the development of algorithms, please see the section on "new forms of collusion: investigative challenges" on page 60.

51 OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, p. 25. Available at bit.ly/2sj5ZmX.

52 The General Data Protection Regulation (GDPR) (2017). Available at bit.ly/2BxQNaI; European Commission (2017). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2017). Building a European Data Economy*. Available at bit.ly/2hjwQuB.

53 European Commission. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2017). Building a European Data Economy*, pp. 15 and 16. Available at bit.ly/2jpmHl.

Finally, given that information is an important input when investigating anticompetitive conducts, greater knowledge on the data collected by firms could facilitate the authorities' actions in those markets and therefore would help the guarantee competition. However, the nature of the data (personal and non-personal), the technical considerations and costs should be taken into account.

How do information and algorithms favor competition?
<ul style="list-style-type: none"> ■ By using algorithms to collect, systematize and analyze large amounts of information, firms may generate savings in production costs and gains in efficiency that may be transferred to consumers through greater quality or lower prices. ■ When companies have greater information on their clients, they may provide products, services and personalized content, thus better satisfying their preferences. ■ Transparency in the market allows users to easily compare different products, prices, quality, delivery times, among other characteristics. ■ Greater availability of information and means to process it may facilitate investigations of anticompetitive practices.
How could they harm competition?
<ul style="list-style-type: none"> ■ The accumulation of Big Data may constitute an entry barrier for new firms because of the costs (of data collection, switching and others) implied, creating a <i>lock-in effect</i>. ■ Companies may use information and algorithms to carry out anticompetitive conducts, such as blocking new competitors from entering the market and the emergence of new forms of collusion.

SHARING ECONOMY: HARNESSING UNDER-UTILIZED RESOURCES

Much has been discussed on the effects of the sharing economy on the supply and consumption of goods and services. The relationship among suppliers and consumers, commonly executed through a two- or multi-sided digital platform,⁵⁴ implies making use of goods and services that do not become the user's property nor are they intended for her exclusive use. Being able to rent a car that is parked outside of the place where the user had a meeting or to rent a room from a homeowner that does not use it, has become common practice using technology and disruptive platforms such as *Bla Bla Car* or *Airbnb*.

⁵⁴ Sharing economies can exist regardless of digital platforms. However, this technological development has created new collaborative economies that quickly grow thanks to the efficient flow of information enabled by technology.

The sharing economy favors competition by allowing new suppliers to enter the market, thus challenging traditional related markets. Even though they may not always directly compete or participate in the same market, sharing economy schemes exert pressure on companies that already offered a service or similar good in a traditional manner. An example of this are crowdfunding firms which attract several individuals' available and unused financial resources and offer them to those requiring financing, thus providing an alternative to traditional bank loans. The sharing economy therefore appears to motivate competition among business models in those markets where sharing economy schemes emerge, such as transportation, lodging and financial services, among others.

Box 11. Sharing economy

Sharing economy refers to the harnessing of products, services, capital, spaces and goods in general through their shared use among private individuals, typically through a platform, thereby eliminating the barriers imposed by property and allowing access to them to by a larger number of users, other than the owner.

Their main characteristics are:

- Sharing economy markets work as a two- or multi-sided markets, that is, two types of users (or more) are benefitted from the interaction through a platform that acts as an intermediary.
- It opens new opportunities and areas of value through the use of goods or resources that were underutilized, for example, a vacant property which may or may not imply the monetary payment to one of the parties.
- The line between professional and personal activities are usually blurred because the supply of work and services often refers to activities that generally are considered as part of the personal sphere, such as "giving a ride" or renting a room in a house.

Source: Vitkovic (2016). *The sharing Economy: Regulation and the EU Competition Law*, pp 83-86. Available at bit.ly/2GUvmSp.

However, in certain markets, the emergence of sharing economies may imply a disadvantage for some suppliers, especially those whose traditional operation is regulated. In this respect, disruptive firms based on sharing economies, especially at the beginning of their operation, are not forced to incur certain regulatory costs that suppliers in traditional markets must face, such as licensing, taxes or complying with security requirements.⁵⁵

⁵⁵ Discussions on *Uber* and *Airbnb* are further considered in the next section. For a discussion on regulation of disruptive models in contrast to traditional models see: Chiara Farronato and Jonathan Levin (2015). *The Rise of Peer-to-Peer Businesses*. Credit Suisse. Available at bit.ly/2FKkwzm.

Furthermore, given that sharing economy schemes generally imply the participation of a third party that develops and operates the platform to connect suppliers and consumers, these agents could, in certain cases, limit competition in the supply of the good or service that is offered through the platform, for example by:⁵⁶

- **Setting barriers to multi-homing:** dominant platform operators might impose exclusive contracts to prohibit suppliers from selling their goods or services on other platforms. In this situation, the platforms become “gatekeepers”, making it difficult for other competitors to extend their supply network and attract new consumers. Another subtler way of hindering multi-homing is by not letting users transfer their information, for example, their “reputation”, history, profiles, etcetera, from one dominant platform to another. The former could imply a disadvantage for platforms that want to enter the market.
- **Fixing price restrictions:** whether or not sharing economy platforms intervene in price setting or if they determine prices through algorithms responding to market supply and demand is up for discussion. But the possibility exists that platforms may influence the price of goods supplied through them. Some platforms vary the price in function of demand, increasing the price as users demanding the service increase and decreasing the price when the number of suppliers increases. In this case, companies with high market power can force those who offer the service to charge lower prices on their platforms versus the price offered on substitute platforms. The former may have the intention to squeeze competitors from the market or block the entry of new agents. For example, a dominant transportation platform may force their drivers to charge lower fares than those charged on a new platform, to squeeze the competition out of the market.

How does the sharing economy favor competition?
<ul style="list-style-type: none"> ■ As a result of the sharing economy, diverse underutilized assets may be offered in the market, which in turn generate a variety of business models, products and services available to consumers
How could it harm competition?
<ul style="list-style-type: none"> ■ Sharing economy platform operators may try to avoid multi-homing to maintain their dominant position in the market. ■ It is uncertain, yet possible, that platforms intervene in the price fixing of services with anticompetitive objectives.

⁵⁶ Vitkovic (2016). *The sharing Economy: Regulation and the EU Competition Law*, pp. 107-113. Available at bit.ly/2GUvmSp.

REMARKS

This section provides a brief description of the main characteristics of digital markets that may incentivize competition by forcing suppliers to become more productive and increase consumer access to more purchasing options.

An important characteristic is the lessening of geographic restrictions. The costs of logistics for users and suppliers of all sizes are diminished, allowing consumers to access more products and services at lower prices.

Furthermore, these characteristics foster competition between different business models, so participants must constantly innovate to avoid being completely displaced by new competitors through disruptive innovation, which would allow newcomers to resoundingly reduce costs or even create a new market.

As discussed above, network effects play an important role in the digital economy. The value of a network increases as the number of users increases, therefore the size of the market it creates generates incentives for the platform operator to continue innovating to preserve its clients through better quality of service.

Interoperability is essential for users to have access to an ample range of different platforms from diverse developers, with the freedom to select the one that best suits their preference.

The use of Big Data and algorithms, a characteristic of digital markets, has allowed companies to: i) better understand their customers, and therefore create a wider variety of innovative services that better satisfy individual preferences through greater information (location, age, purchasing power, habits, and others), and ii) the development of greater possibilities to make their productive processes more efficient. Furthermore, through greater transparency of information, users can compare different suppliers within minutes and without incurring in additional costs.

It is also important to consider that the characteristics of digital markets can generate risks to competition and free market access. For example, entry barriers for new entrants may emerge from network effects, the accumulation of Big Data or if the regulatory framework hinders new companies from accessing and competing in the market. The former may result in high market concentration and the absence of competitive pressure, which in the medium-term disincentivizes con-

stant innovation. Furthermore, developers may limit interoperability and the supply of services in a geographically wider market to displace competitors or block market entry. Lastly, algorithms may enable and/or automate the formation or monitoring of collusive agreements.

The aspects that favor and harm competition in digital markets must be considered for the effective enforcement of competition policy. They must also be considered in discussions related to the possible need to regulate certain markets that may require such regulation for reasons of public policy. It is important that regulations keep markets open to new competitors, allow companies and users to benefit from network effects, not hinder the use of information or algorithms for competitive purposes, and keep incentives to innovate and improve conditions of supply and consumption.

The following section discusses the challenges faced when designing regulation that does not hinder competition for the case of two digital markets in the Mexican context.

2

CHALLENGES OF PRO-COMPETITIVE REGULATION IN DISRUPTIVE MARKETS

As discussed in the past section, innovation and technological advances often change cost structures and the competitive environment in an industry. The Internet expands the options available to consumers through easier access to suppliers. Additionally, two-sided (or multi-sided) digital platforms oftentimes disrupt sectors that have traditionally been regulated, such as transport, finance, health, professional services and lodging. This new reality could come with challenges regarding consumer protection, in terms of physical integrity, personal data, or others. Accordingly, an extensive debate on the need to regulate the supply of goods and services through digital platforms is opened. If the case for regulation arises, it should not block innovative or disruptive firms from participating and competing in markets.

In this context, whether a market is traditional or disrupted as a result of digital advances, whenever regulation is deemed necessary, it should follow the basic principles of all effective legislation. The following paragraphs briefly explain these principles:

- **A clear public policy objective.** When faced with new products or services, policymakers should bear in mind the market failures to be corrected or the public interest it aims to protect so that any new regulation or extensions to existing regulations do not overstep these clearly identified objectives.

- **The creation of benefits that are greater than social costs.** Once a clear motivation for the design of regulation has been identified, policymakers should consider social and economic impacts, both positive and negative. Regulation makes sense only when the benefits it generates are greater than the costs associated with its fulfillment, enforcement, and other aspects. The regulatory burden on new or small firms in the form of administrative costs and compliance with legislation, may reduce the time allocated to innovation. Inefficient and duplicated regulation harms the economy.
- **It should be the alternative that least distorts competition.** Before imposing legislation, it is pertinent that policymakers evaluate the alternatives, both regulatory and nonregulatory, to achieve the desired objective. The decision to create/impose regulation should be analyzed according to how useful it is when addressing the issue at hand as well as considering the market distortions it could generate.
- **Keep the incentives for intense competition.** Regulation should allow firms to differentiate themselves to earn the customers' preference, especially in those specific factors that determine the result of competitive processes in each market. In some, the main variable for differentiation may be price. In others, for example, in digital markets, it may be the capacity to be innovative. For this reason, in the case of these markets, regulation should be flexible to allow innovation and the entry of new competitors. On the other hand, larger companies may have greater resources for innovation and development than smaller firms, therefore facing competition is an important motor for innovation. When competition is fostered, so is the creation and dissemination of knowledge throughout the industry.

When faced with the transformation or creation of markets that derive from disruptive innovations and the sharing economy, in the cases for which regulation is deemed necessary, policymakers should ask themselves if additional aspects are relevant. Competition authorities can exercise their powers to promote procompetitive legal frameworks (for example, the opinions that COFECE may issue to the authorities designing regulations) to introduce these additional considerations into the discussion of the regulatory design process. The following sections raise some of these considerations.

Provide legal certainty that allows for the development of new business models.

In any context, for regulation to promote the efficient functioning of markets, it must offer consumers and suppliers a clear legal framework. In the digital economy, some recent innovations developed and began operating (or continue to operate) outside regulatory frameworks. For this reason and for the first time in Mexico, between 2014 and 2015, a discussion arose on whether to allow, prohibit or regulate (and, if so, how?) a service based on disruptive technologies: the operation of Transport Network Companies (TNC) (see Box 12).⁵⁷ Providing legal certainty for the operation of a digital technology can favor investment in the development of this type of platforms, and promotes the consumption and supply of products and services through the new business models. Therefore, if regulation is issued, it must be adapted and sometimes limited to this purpose.

Uncertainty for regulated firms should be avoided by providing clarity and precision in terms of the concepts and procedures contained in the law and secondary legislation. Otherwise, compliance costs would increase for companies, especially new entrants, and regulation could become a barrier to entry. However, creating provisions which are too specific could result in early obsolescence of the regulatory framework. The aim of clarity may result in overregulation the sector, which could limit firms' competitive capacities, and decrease the number and variety of companies entering the market and reducing their incentives to compete vigorously.

In accordance with the above, providing legal certainty without limiting competition implies regulation must be flexible to allow innovation and new entrants, that is, it must create a legal framework that allows firms involved and potential entrants to develop and diversify their business models. The authority should not base the design of regulation on the first disruptive technology, since it could inhibit the development of subsequent innovations.

⁵⁷ Source: COFECE. OPN-008-2015. Available at bit.ly/2oxdtTe.

Box 12. TNCs and their regulation

In recent years the debate as to whether governments should regulate platforms for the transport of people (such as *Uber*, *Cabify* and *Easy Taxi*, to name a few) has been opened in many countries. In the case regulation is deemed necessary, how should it be designed to avoid limiting competition?

Mexico was not the exception. In June 2015, COFECE issued an opinion on TNCs. The Commission mainly recommended state government's recognition of the service as a new mode of transport that should be allowed to operate because of the benefits provided to consumers, such as the identification of the driver providing the service, information on trip duration and cost estimates. Furthermore, the Commission suggested that if regulation is deemed necessary, it should be limited to the defense of public objectives such as security and user protection, prioritizing competition and free market access. COFECE also suggested that regulation should ensure users benefit from the developments derived from the new business model.

Thirteen states modified their legal framework or issued new regulations that recognize the business models under which TNCs operate, thereby providing legal certainty according to COFECE's recommendations. For example, Guanajuato, Queretaro, Coahuila, Yucatan, San Luis Potosi, Colima, Sonora and Tijuana established minimum security requirements for users, such as: anti-block brakes, seat belts and airbags. The State of Mexico requires users to have valid civil liability insurance. Some legal frameworks, such as Mexico City's and the State of Mexico also require a financial contribution to the public purse. In Mexico City's case, the contribution will go to a fund for taxis, mobility and pedestrians, which seeks to improve mobility in the city.

However, it is worth noting that some states set anticompetitive regulations. The case of Guanajuato stands out because the regulation establishes a limit to the number of vehicles. The cases of Colima, San Luis Potosi, Jalisco and Tijuana are worth mentioning because their regulation sets forth the annual renovation of permits for the provision of the service.

COFECE's opinion on TNCs was awarded in the annual Competition Advocacy Contest, organized by the World Bank and the International Competition Network (see press release in Spanish at bit.ly/2oHxDsF). The full opinion in Spanish is available at bit.ly/2oxdtTe.

This flexibility can be achieved, for example, through the implementation of novel administrative models, such as the case of a *regulatory sandbox*. Its objective is to allow testing innovative business models for a limited duration and in a limited scope, with appropriate protection safeguards to contain the consequences of possible failures. These schemes have been used by countries such as the United Kingdom in its financial sector.⁵⁸

⁵⁸ See *Regulatory sandbox lessons learned report*, Available at bit.ly/2yK7q3A.

Identify the differences with respect to traditional services, which constitute the essence of new services.

Generally, the regulatory schemes for traditional industries have had the same structure for decades and lack the flexibility needed to provide legal certainty to new forms of competition. In addition, there have been cases in which regulatory agencies have tried to frame new business models in old regulatory schemes. This could result in the non-viability of the new models because regulation may increase the costs faced by disruptive companies through requirements, permits or authorizations, rendering them unable to compete and forced to exit the market. (An example of this could be regulating TNCs as traditional taxis or regulating the sharing economy firms that offer lodging services as if they were hotels).

Additionally, the established regulation could end up protecting or favoring specific economic agents (be it the traditional suppliers or the one that generated the first disruptive innovation). The risk of the latter occurring would be greater when the regulatory agencies could be influenced by the interests that they traditionally regulate, and these could pressure them to prevent the entry of new players through regulation. Either way, disruptive technologies challenge the regulation designed for traditional business models or for the first disruptor. The question arises whether this regulation should be applied on disruptive models in the same way as it is applied on traditional suppliers, or applied differently, or even if the model should be exempt from existing controls.

When a digital market emerges, given its differences from traditional markets, accurately anticipating the benefits of the business model can pose a challenge; costs are often clearer. Therefore, it is important to consider the full and long-term analysis of the effects of regulation.

Regulation, where appropriate, should be based on the characteristics and implications of each activity and recognize the differences between traditional and innovative sectors. The objective of regulation should not involve treating differentiated agents with equal terms (for example, trying to apply equal regulation to companies that use different business models).

Prioritizing self-regulation schemes when market failures are solved.

Generally, traditional rules seek to correct market failures that emerge from the sale of certain products or the provision of certain services in the markets that they regulate. For example, regulation related to the individual public transport of passengers (taxi services) seeks, among other issues, to guarantee minimum standards of quality, safety and reliability to protect passengers whom are unaware of the mechanical state of the car, or the driver's driving skills, which places them in a vulnerable position.

In contrast, and as has been explained, some market failures can be solved effectively through technology in new business models, especially through their self-regulation schemes.⁵⁹ Platforms such as *Uber* and *Cabify* solve, to a certain extent, the problems mentioned in the previous paragraph through tracking and traceability of the trips and the driver rating system.

Other platforms also regulate the quality of services to protect their customers. For example, platforms that offer professional services, such as *freelancer.com*, corroborate the profiles and behavior of professionals who offer their services within their platform, in order to remain attractive to the users that hire them. Some business models that arise from digital technology regulate the prices at which the suppliers can sell their products; such is the case of the *iTunes Store* which establishes maximum rates for downloading music, charging 0.99 dollars per song and 9.99 dollars per album.

In addition, platforms can also regulate the supply of information by making users aware of vendor reliability. For example, *eBay* has an identity verification system for its vendors, which gives buyers confidence in the success of a purchase through their site. Also, some platforms encourage competition among sellers, which ends up benefiting consumers in terms of quality and price. For example, ticket resale platforms such as *stubhub.com*, allow sellers to be sorted by price and reputation, which encourages them to compete to attract customers.⁶⁰

⁵⁹ Tirole (2017). *La economía del bien común*. Taurus, p. 418.

⁶⁰ Ibidem, pp. 418 and 419.

In this sense, the authority should consider that self-regulation schemes, such as those mentioned above, can effectively solve some market failures and, therefore, reduce the gaps that traditional regulation seeks to address. It is desirable that, when regulating disruptive technologies, policymakers identify market failures solved by innovation, as well as the minimum-security standards for users and consumers that still need to be guaranteed. This would allow the regulation to be limited to addressing problems that are not resolved by the business models themselves and avoid imposing requirements that duplicate the attention to market failures already solved. It also opens an opportunity for the authorities to reconsider the need for certain regulatory requirements related to traditional activities.

Favor proportionality of requirements, procedures and deadlines for companies to operate.

The requirements, procedures and deadlines to obtain a permit or authorization must be proportional to the business model, as well as to the complexity and risks of the activity in question. Otherwise, regulation could unnecessarily limit the entry of new firms or hinder the diversification of services offered by existing companies, which would harm the consumer. An example of this is the discussion in connection to paying taxes for lodging services. In this regard, regulation must consider that taxes be proportional to the negative externalities that such services generate and their collection should correspond to the model under which these platforms operate (see Box 16 for the case of Mexico City).

When a new company creates a market or radically modifies it, the regulation designed may correspond specifically to its business model. In other words, regulation may be customized to fit the only (or the main) firm that offers the service at the moment of its design. However, this could discourage or hinder the emergence of new companies that would apply competitive pressure on the existing one. Moreover, due to the nature of the services provided, especially if they are based on network economies, some of the platforms that already exist could acquire substantial power in the market and, if so, could abuse their dominant position. It is therefore important that regulations do not block the entry of potential competitors or unduly displace them.

Accurate identification of the parties subject to regulation.

Tackling the challenge requires understanding that platforms do not necessarily provide goods and services directly, but rather act as intermediaries between suppliers and customers. Once this is established, the challenge is to define who is responsible for complying with the regulation, whether the platforms that connect consumers with the suppliers, or the suppliers themselves. For example, regarding the debate on tax collection, this begs the question as to whether the platforms should be required to collect the corresponding taxes for the provision of the services offered through them. In Mexico City's case, as of July 1, 2017, the platforms that offer lodging services through sharing economy schemes are required by law to collect and pay the local lodging tax of 3% (see Box 16).

In some markets, there may also be a need to distinguish between platforms that use sharing economy schemes and platforms that only offer a good or service. There are examples of this in the transport and lodging sector. Compare applications such as *Yaxi* or *Easytaxi* which only connect passengers with taxi drivers, to platforms such as *Bla Bla Car* or *Carrot*, that offer the use or rental of private cars through sharing economy schemes. These differences should be considered when establishing the regulatory obligations of each of these agents.

Ensuring neutrality in the face of technology and fostering competition through the appropriate use of information.

The legal framework must be adequately designed to submit firms involved in comparable activities to similar regulation, permitting the development, adoption and use of technology, infrastructure and business models that allow them to compete in the market. Moreover, when the necessary inputs to carry out an activity are controlled by one or a few companies, it is necessary to guarantee open and non-discriminatory access to these inputs for new entrants so they can compete on equal terms with those who already have access to them (for example access to user information).

Application programming interfaces (APIs, see Box 13) are a key element for competition, for example, in the financial sector, because they allow the creation of innovative business models. For this to happen, it is necessary for banks to share their customer data with developers and

other financial technology companies with the purpose of eliminating barriers to entry and increasing competition in the sector. However, it is also necessary to take into account certain considerations regarding data privacy. Additionally, who should dictate the conditions for the exchange of information must be clear.

Box 13. Application Programming Interface (API)

APIs help software programs exchange data and communicate in a rapid, effective and standardized manner. They enable companies to innovate by creating new applications through the automation and integration of processes, extending the possible services to customers.

Disruptive technology in other sectors has led to discussions on the need for regulation and its design, as well as taking into account the considerations explained above. The following sections discuss two of these cases: financial technology institutions and lodging services provided by sharing economy platforms.⁶¹

THE CASE OF FINANCIAL TECHNOLOGY INSTITUTIONS

Financial technology institutions (FTI, also known as fintech) are those that, through innovative business models and the use of digital platforms, have created new means for the provision of different financial services.⁶² These differ from companies in the traditional financial sector because: i) they tend to specialize in segments of the population with specific needs that do not meet the criteria for receiving the services offered by traditional banks,⁶³ for example, unbanked or under-banked consumer groups; ii) their operations do not depend on having an infrastructure or operational structure of large dimensions, such as branches for the purposes of customer service; iii) offer more information to users and inclusive user-friendly alternatives; and iv) are more flexible to meeting changing demand and adapting to technological changes.

The financial technology sector has displayed important growth in Mexico. The segments in which FTIs operate in the country can be grouped as follows:⁶⁴

⁶¹ The *Jornada por la competencia 2017* (National Competition Day) as previously mentioned, included roundtables on these two economic activities.

⁶² COFECE. OPN-007-2017 in Spanish. Available at bit.ly/2oIv8qh.

⁶³ Obtained from the opinion BITSO provided, in the survey published on COFECE's website for the 2017 National Competition Day.

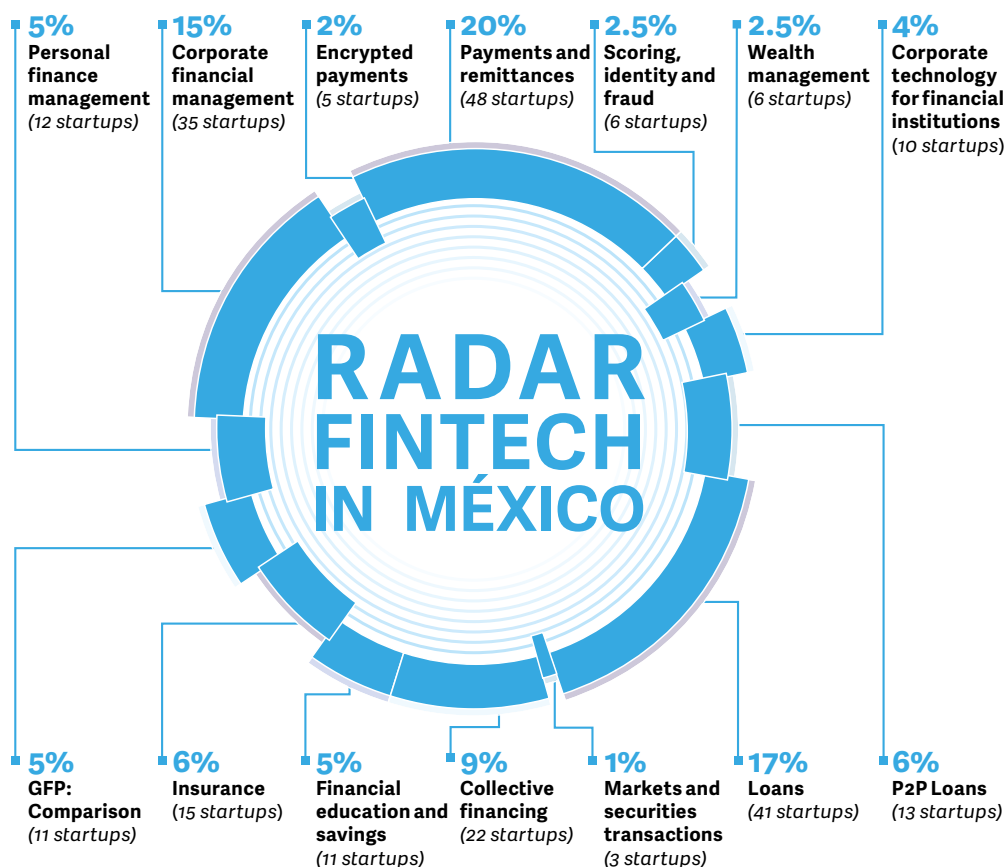
⁶⁴ COFECE. OPN-007-2017 in Spanish. Available at bit.ly/2oIv8qh.

- **Payments and transactions.** Electronic payment services with direct transactions between individuals, foreign exchange, remittances and the use of virtual currencies (cryptocurrencies) as a means of payment.
- **Credit and financing.** These synchronize the supply and demand of financial resources. Usually FTIs do not directly lend the resources they collect, but these operations are carried out between individuals or between individuals and businesses, through electronic platforms. For example, collective loans (crowdlending), which consist of direct loans between borrowers and small-scale lenders (through peer networks), in exchange for interest payments.⁶⁵
- **Financial consulting and management services.** Investment decisions, personal finances, asset management and financial management require specialized knowledge on operational, technological and legal aspects of the market. In this area, FTIs have emerged to offer investment management services and other financial decisions through automatic systems based on Artificial Intelligence and can serve, for example, to simplify payments from payroll to billing. Information banks also stand out in this segment; among other things, these operate platforms through which users access all their financial information (credit history, personal accounts, and other information) and manage their personal finances.
- **Insurance.** Companies that use technology in the insurance industry to help users to purchase and simplify the management of policies.

Figure 1 shows a more disaggregated classification of the variety of services offered by FTIs, as well as a map of the number of startups in Mexico in each item.

⁶⁵ A related concept, *crowdfunding*, implies collecting funds via online platforms for the development of projects or for the support of specific purposes (for example, charity), without expecting a financial return. Sometimes the payment can be in kind, for example, being the first to access the development that results from the supported project.

Figure 1. Startups operating in Mexico up to June 2017



Source: Finnovista (2017). *Fintech Radar México*.

As is often the case with innovative technologies or business models, the activities and services provided by the FTIs did not fit into the current regulatory framework for the financial sector in the country. In Mexico, on March 1st, 2018, the Law to Regulate Financial Technology Institutions was passed. Given the environment of constant innovation that currently exists in the financial sector, and the low levels of financial inclusion, it was desirable for companies to have an adequate regulatory framework to develop, adopt and use technologies and infrastructure to compete in the market, as well as for users to have the certainty necessary to carry out transactions in a secure fashion. This favors the stability of the financial system. In this case, COFECE contributed to the design process of this law by issuing an opinion (see Box 14).

Box 14. Fintech Law

In October 2017, the Executive branch of the Federal Government sent the Draft Law to Regulate Financial Technology Institutions to the Senate. This law regulates: i) collective financing institutions, ii) electronic payment institutions, and iii) transactions with virtual assets.

COFECE issued an opinion to the Senate recommending some changes to the draft law to encourage competition and innovation. The following recommendations are noteworthy:

Explicitly establish that users own their information and regulate the considerations for the transfer of data. This implies clearly establishing that users own their information, that is, their transactional data, which could be transmitted through the networks, as long as the owners authorize it, and the confidentiality and security of the information is guaranteed. This is relevant because the customer information is a very valuable input for the FTIs to operate.

Legally require credit institutions to provide financial services to FTIs, under non-discriminatory conditions. To provide their services, FTIs need access to banking services and to the customers' accounts they want to serve. In addition, they must have access to the Mexican electronic inter-bank payment system (SPEI), among others. Otherwise, they would not be able to compete. Therefore, if credit institutions grant such services under discriminatory conditions, sanctions should be established.

Explicitly establish that FTIs may use any technological infrastructure. In this way, regulation does not constitute a barrier for FTIs to decide how to offer their services as long as they do so in safe conditions for their clients.

Add general provisions to the law establishing that new business models or activities that authorities determine will be allowed. Avoid including an exhaustive list of activities that can be carried out by the suppliers, since this could require legislative changes with the invention of each new business model. Innovation in the financial sector is so accelerated that regulation must be open to new business models.

Reduce the length of authorization periods and procedures, grant legal certainty for the operation of new business models through regulatory sandboxes. Since innovation is a relevant factor for competition, regulation should not inhibit it.

On March 1st, 2018 the Fintech Law was passed. Among the noteworthy improvements to the Law derived from COFECE's opinion are: users explicitly own their information and authorities must determine the considerations for the transmission of the data. In addition, FTI's access to information was guaranteed by establishing the terms and conditions under which the interruption in the transmission of data is deemed appropriate. Finally, the charging of differentiated rates was prohibited, that is, financial entities were prohibited from charging different rates to FTIs and other customers.

COFECE's opinion, in Spanish is available at bit.ly/2olv8qh.

THE CASE OF LODGING SERVICES SUPPLIED BY SHARING ECONOMY PLATFORMS

Lodging companies based on the sharing economy (for example *Airbnb*) are intermediaries that, through digital platforms, allow those who need lodging to connect with those who have the availability to receive guests. As a result, they have the potential to increase the competitive pressure faced by traditional providers (such as hotels), as well as encourage the adoption of more efficient technologies in the markets in which they operate.

This business model has generated a new and attractive service for guests and hosts due to:

- **The flexibility and availability of lodging space.** There are localities or tourist destinations that do not have the conditions to supply traditional lodging services on a permanent basis, or places where the demand for lodging exceeds available hotel rooms at certain periods of the year. This occurs, for example, when events concentrate many people in a city during short periods.
- **The different standards of quality.** They offer a greater variety of amenities for consumers who have lodging needs that are not met by traditional lodging services, usually at a lower cost.
- **The use of idle resources.** Those who have accommodation spaces available for certain periods, be it their house, apartment, a room, or others, can obtain income from their use. This possibility did not exist so extensively before the appearance of lodging offers through digital platforms.

In this regard, some governments have expressed concern about protecting guests, for example, by requiring platforms to ensure compliance with minimum civil protection rules, such as those imposed on hotels. In the case of this sector, the Spanish experience is enlightening (see Box 15).

Box 15. Anticompetitive regulation: the cases of Madrid and Canarias

In Spain, some local authorities sought to frame the activities of lodging services offered by sharing economy platforms within the legal frameworks designed for the traditional sector, or modify current regulations in response to the operation of these new business models.

The Spanish competition authority (National Commission of Markets and Competition, CNMC), reviewed the local regulations applicable to housing services to identify restrictions on entry and operation in the sector. Obstacles to entry which stand out include: minimum and maximum stay requirements, regularity requirement in the provision of the service, prohibition of rent of individual rooms, and the prohibition of the rent of the entire property. Restrictions to operation identified include: requirements of minimum dimensions in square meters, minimal equipment such as furniture, household appliances, 24-hour telephone support requirement, authorization from the association of owners of the area, among others.

Specifically, the CNMC has sought the elimination of anticompetitive regulation in the communities of Madrid and the Canary Islands. Regarding the case of Madrid, the regulator determined that the *Decree that Regulates Apartments and Houses for Tourist use for the Community of Madrid* imposed restrictions such as requiring the supply of wireless Internet, having a distinctive badge and a list of prices at the door, as well as having the approved blueprints for sewage by a professional group of architects. Moreover, the decree required a minimum stay of five days, which could ruin the business model of lodging platforms. In the case of the Canary Islands, the regulator identified that the *Regulation of Holiday Homes in the Autonomous Community of the Canary Islands* prohibits rent of rooms, establishes a comprehensive catalog of requirements regarding the dimensions and equipment of households; requires the display of a distinctive plaque of the activity and a poster with the phone numbers for assistance in case of emergency and also requires the signing of a written contract in Spanish and English, among others. But, above all, it excludes dwellings located in tourist urban areas and zones, benefiting the tourist lodgings previously established in these. By using its powers, the CNMC has managed to get the judiciary to demand that both communities eliminate some of the aforementioned barriers.

Source: CNMC press release in Spanish, available at bit.ly/2oGmTLc; SAE expert reports, available at bit.ly/2HSZyie.

In Mexico, lodging platforms are not necessarily recognized by local laws, which tend to lag behind technological developments. Some have stated that while hotels are subject to regulations and entry costs, these platforms operate without that governmental burden; also, there are those who believe that it is important that consumers have the right to have differentiated options available. Lodging service platforms through the sharing economy have only been regulated in Mexico City and the state of Quintana Roo (see Box 16). However, the possibility of

regulating them is being discussed in certain tourist destinations and other cities. Additionally, this debate presents an opportunity to reflect on the current regulation and supervision schemes for traditional suppliers (mainly hotels and hotel chains), with the aim of identifying possible improvements by eliminating regulatory obstacles to competition.

Box 16. Regulating lodging services platforms in Mexico City and the state of Quintana Roo

In June 2017, Mexico City's government and *Airbnb* signed an agreement, which states that the platform would pay a 3% tax to meet its tax obligations. Thus, Mexico City became the first city in Latin America to regulate the services offered by the platform. In addition, the City government reformed its Tax Code to recognize and include platforms so that, as "intermediaries, promoters or facilitators, they may intervene in the collection of compensation for lodging services". By distinguishing them from suppliers of traditional lodging services (for example, hotels), companies are provided with certainty and the creation of new innovative business models is promoted.

The government of the state of Quintana Roo also signed an agreement with *Airbnb* establishing the same 3% charge. Modifications to state regulation were not necessary, since the obligation to pay a tax for offering the temporary lodging service was already considered.

Regulation in Mexico City and Quintana Roo encourages the use of the sharing economy and recognizes its benefits, not only for the platform or service providers, but also for consumers by increasing their accommodation options, and for cities by promoting tourism and facilitating the collection of the said tax.

Sources: Melania Atayde (2017). *Impuesto a Airbnb con impacto positivo en la CDMX*. El Economista. Available at bit.ly/2F5Wced and Forbes Staff (2017). *Airbnb pagará impuesto de 3% en reservas de Quintana Roo*. Forbes México. Available at bit.ly/2GX5ENs.

REMARKS

Faced with the transformation of existing markets and the emergence of new markets in a digital economy environment, regulators should take into account the considerations set forth in this section (and probably additional ones required by the analysis of each specific case) to ensure that regulations allow the competitive dynamics and benefits to consumers that are generated in this context.

The competition authorities face the challenge of anticipating these discussions and implementing measures to advocate for competition that can have a definitive influence on the future and long-term functioning of the markets. The impact on consumer welfare of this type of measures can be very high.

Additionally, they must protect the entry of new business models and, at the same time, prevent new players from engaging in anticompetitive practices. The next chapter summarizes the possible challenges they may face in doing so.

3

CHALLENGES IN THE ENFORCEMENT OF COMPETITION POLICY IN THE **DIGITAL ECONOMY**

As previously mentioned, digital markets have characteristics that differentiate them from traditional markets, and that affect the way in which companies compete for consumer preference. As discussed in the first section of this document, some tend to favor the entry of new companies and more intense competition in the markets. Others could facilitate the formation of scenarios prone to lack vigorous competition, companies with a large market share, the abuse of dominance or the emergence of collusive practices.

The existence of “technology giants”, such as *Amazon*, *Apple*, *Facebook*, *Google* and *Microsoft*, has generated concern over the power these companies have and, in some cases, have led to considering new aspects of the enforcement of competition rules, or even the disincorporation of these companies.⁶⁶

Faced with the challenge of advancing the enforcement of competition policy constructively, in a context of growing and widespread concern over the high concentration of digital markets and high profits, Shapiro (2017) delineates some possible actions:⁶⁷

- according to the author, in the face of concentrated markets, given the higher risk of collusion, dedicating more resources to the detection and correction of cartels may seem like a “natural” response;

⁶⁶ See the following example: The Economist (2017). *Too Much of a Good Thing*. Printed edition, May 26, 2017. Available at bit.ly/2oHrrBd. Also see: The Economist. *The Techlash against Amazon, Facebook and Google—and What They Can Do*. Print Edition. January 20, 2018. Available at econ.st/2DqU67u.

⁶⁷ Shapiro (2017). *Antitrust in a Time of Populism*, pp. 21-27. Available at bit.ly/2iocIHU.

- identifying and strengthening concentration analysis, for example, through the application of more stringent standards applicable to operations that may harm *future* competition, that is, that involve the *potential* diminishment of competition;
- set aside the view that the size of companies makes them bad *per se*, to focus on those business conducts that can harm the process of competition and free market access and/or the consumer in the present or in the *future*;
- considering the evidence of higher corporate profits and lower rates of business creation, the author points out the need to reduce barriers to entry in the markets, fostering entrepreneurship and innovation;
- analyze if the fragmentation of large companies in concentrated markets⁶⁸ would generate benefits for consumers, before taking that position; and
- although it is true that regulation for companies with substantial market power is an alternative for the control of market power, its implementation carries some challenges. For example, regulating can be risky due to rapid technological changes and the possibility of resulting in regulatory capture.⁶⁹ Therefore, according to the author, comparing and weighing these options requires considering the context in which these companies have developed (see previous section).

In this sense, it is relevant to point out what challenges the authorities would face, given the institutional and legal framework that guides the competition policy, in the context of the characteristics and factors of the digital markets that can give rise to anticompetitive behavior by firms (such as collusive agreements or abuse of market power), to barriers to competition or to exclusive advantages for certain agents. Furthermore, it is important to discuss whether the current regulatory framework and the tools and powers that it grants authorities should to be rethought, or even modified, in order to guarantee competition in both traditional and digital markets. This is the objective of this section.

68 See the following example: *Should America's Tech Giants Be Broken up?* Business Week, July 20, 2017. Available at [bloom.bg/2vtLmGc](https://www.bloom.bg/2vtLmGc); or The Economist. *The Techlash against Amazon, Facebook and Google—and What They Can Do*. Printed Edition. January 20, 2018. Available at [econ.st/2DqU67u](https://www.econ.st/2DqU67u).

69 See: Khan (2017) for a regulation proposal for Amazon. Available at bit.ly/2iCbsVH.

BIG DATA: ENTRY BARRIER?

As previously mentioned, one of the characteristics of digital markets is the high availability of data on users and their competitors for the benefit of firms. Regardless of public policies aimed at the protection of personal data, which are not the subject of this document, from the point of view of competition, information plays a crucial role. It is an asset for companies; they invest in collecting, systematizing and exploiting information for their benefit. Therefore, the ownership of information could supply a company with market power,⁷⁰ and if it is in a dominant position, the firm could use such power in an anticompetitive manner, for example, to displace its competitors or prevent the entry of more efficient companies.⁷¹

Furthermore, in certain markets, if firms do not have certain information or amount of data, they may be unable to compete. That is, in specific cases the lack of information could become an entry barrier for new competitors, especially (as previously mentioned) in markets with network effects.

In terms of competition policy enforcement, many authorities -such is the case of Mexico- have the power to investigate the anticompetitive use of Big Data, and even correct market structures that hinder the entry of new competitors. The challenge in this sense would lie in the need to carry out an in-depth analysis of when and under what circumstances these powers should be used, to not only correct, but prevent and anticipate the evolution of the functioning of markets. As previously mentioned in this document, as of May 2018 the European Union will enforce regulation on data protection that includes precepts of portability, which could reduce the risk of the anticompetitive use of information. This new regulation could present an opportunity to observe the effects of having greater powers to regulate the ownership of personal data on competition.

⁷⁰ For example, when it is difficult and costly to collect information, when it is required in real-time, or when information provides an advantage through algorithm learning. See section on “Big Data” on page 29, in the first section of the document.

⁷¹ See: Stucke and Grunes (2016). *Big Data and Competition Policy*, Oxford; or Carlos Mena (2017). *Bigdata y algoritmos tramposos*. El Financiero. Available at bit.ly/2t9GfxK in Spanish.

NEW FORMS OF COLLUSION: INVESTIGATIVE CHALLENGES⁷²

Big Data and algorithms are a characteristic of the digital economy that allow greater speed of communication on price changes, facilitate the detection of deviations from anticompetitive agreements, as well as facilitate and accelerate the punishment of such deviations.⁷³ They may therefore not only facilitate collusion, but provide new ways to carry it out. The four ways of collusion through algorithms put forth by Ezrachi and Stucke (2016) are noteworthy:

1. *The execution and monitoring of collusive agreements facilitated by the increasing capacity of computers and the Internet.*

In other words, the formation and operation of cartels as a human decision, executed through technology. From the point of view of the enforcement of competition rules, this type of agreement can be investigated and sanctioned similarly to others, since, in this case, the algorithms are being used anticompetitively intentionally and at will.

An example of the illegal use of computer algorithms to fix prices is the case of the fine imposed on several poster vendors through *Amazon*. The United States' Department of Justice (DoJ) found evidence that the vendors agreed to fix the prices of certain posters sold in that country through *Amazon Marketplace*. To implement their agreements, the conspirators adopted price fixing algorithms for the sale of certain posters with the objective of coordinating the changes in their respective prices and designed a computer code that instructed software based on algorithms to establish their prices in accordance with the collusive agreement.⁷⁴

2. *The use of the same price algorithm by many users to determine the market price.*

In this scenario, although competitors do not communicate directly with each other to manipulate prices, the negative impact on the market is similar to that of horizontal collusion -i.e, when competi-

⁷² The ideas in this section are taken from Ezrachi and Stucke (2016). *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*.

⁷³ For example, in a traditional market it is only possible to identify substantial deviations from the agreed price with a considerable delay. In digital markets, given their transparency, it is possible to identify small deviations almost as they occur. For further explanation see: Ezrachi and Stucke (2017). *Algorithmic Collusion: Problems and Counter-Measures*. OECD, p. 4. Available at bit.ly/2qEoT7T.

⁷⁴ See: Department of Justice, 2016. *Former e-Commerce Executive Charged with Price Fixing in the Antitrust Division's First Online Marketplace Prosecution*. Available at bit.ly/2oBjSvn.

tors from the same segment of the productive chain enter into collusive agreements-. When several competitors use a common algorithm, one possible result is the presence of higher prices than those that would prevail under competitive circumstances.⁷⁵ From the point of view of competition law enforcement, the challenge to prove the intentionality of the design and use of the algorithm for the price increase emerges, especially in scenarios where the creator and operator of the algorithm is not a competitor in the market in which the price increase is presented.

As an example, consider how some platforms for the transport of people, such as *Uber*, have been questioned for possibly using the price determination algorithm to carry out horizontal agreements between competitors (the drivers) and vertical agreements (between the platform and the drivers) to fix prices using the platform price algorithm. A group of consumers filed a lawsuit against the director of the company in New York City, alleging that the manager organized pricing through the algorithm among drivers who should be competing, including during periods of “dynamic rate” when there is high demand.^{76, 77}

3. *Tacit collusion derived from the use of algorithms that, by adjusting prices according to market data, result in parallel price setting.*

The nature of e-markets, characterized by data availability, the development of similar algorithms, stability and transparency, favors tacit collusion, that is, agreements that arise without the need for communication or contact between competitors. These are sustainable because competitors recognize their mutual interdependence.⁷⁸ A possible result of the widespread use of price algorithms in an industry is the prevalence of higher prices than those that would exist in the absence of the algorithm, without requiring human behavior with a clear anticompetitive intention.^{79, 80}

75 For an explanation on how algorithms can be used to fix prices, see: Oxera (2017). *When Algorithms Set Prices: Winners and Losers*. Discussion paper. Available at bit.ly/2FI93Af.

76 See example: Katz, Elai, 2016. *Uber Algorithm Alleged to Constitute Price-fixing*. The New York Journal of Law. Volume 255, no. 124. Available at bit.ly/2t8nB9y.

77 For Mexico's case see for example: *Conspiración de Uber para cobrar más*. El Universal. Available at www.eluniversal.com.mx/articulo/techbit/2017/08/3/conspiracion-de-uber-para-cobrar-mas.

78 OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, pp. 17 and 33. Available at bit.ly/2sj5ZmX.

79 Ibidem, p. 34.

80 For an example not fined for collusion, but for violating the Securities Exchange Act, which could be of interest from the point of view of competition, see: US Securities and Exchange commission (2014). *SEC Charges New York-Based High Frequency Trading Firm with Fraudulent Trading to Manipulate Closing Prices*. Available at bit.ly/2t7ga2n.

4. *Collusion derived from artificial intelligence in a scenario of market transparency, resulting in an anticompetitive outcome without the need for the existence of an explicit or tacit agreement, but rather as a better response.*

This scenario is perhaps the most complex as it raises the possibility that computers –through artificial intelligence– learn to collude autonomously.⁸¹ That is, there is a risk that some very powerful prediction algorithms will learn and readjust to the actions of other market participants, and thus collude without the need of human intervention.⁸² This not only facilitates tacit collusion, but also makes collusion in variables other than prices possible, and in markets that are not necessarily concentrated or prone to collusion.⁸³

The challenge is to obtain evidence of anticompetitive intentionality, since it could be difficult to prove that one or several individuals created the conditions for the emergence of tacit collusion intentionally.

While it is true that the transparency and availability of information favor the formation of explicit or tacit collusive agreements, it is also a reality that this information availability can be used in favor of the investigation and fining of unlawful agreements among competitors. Thus, data and algorithms can become an investigation tool in competition enforcement.

The detection and punishment of collusion is one of the fundamental components of competition policy. Generally, increasingly concentrated markets tend to be more susceptible to the emergence of cartels. So, if it were true that some digital markets tend to concentrate, then paying more attention and allocating more resources to the prevention and investigation of absolute monopolistic practices (cartel conducts) in said markets, could be a reasonable strategy for competition authorities.⁸⁴

81 For an explanation on how to possibly reach this result, see: Ezrachi and Stucke (2015), *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, Oxford Legal Studies Research Paper No. 18/2015, University of Tennessee Legal Studies Research Paper No. 267. Available at bit.ly/2l2hu2G.

82 OECD (2017). *Algorithms and Collusion- Background Note by the Secretariat*, p. 30. Available at bit.ly/2sj5ZmX.

83 For an example of how this can happen, see: Ezrachi and Stucke (2016). *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*, p 74.

84 Shapiro (2017). *Antitrust in a Time of Populism*, p. 21. Available at bit.ly/2iocIHU.

NEW PRICING STRATEGIES: ABUSE OF DOMINANCE RISKS

In addition to the uses of the information or Big Data discussed in previous sections, companies also devote a significant quantity of resources to obtain, store and analyze data on consumers, in order to charge them a price as close as possible to their maximum willingness to pay for a product or service, or to offer products to better suit them. Moreover, these data can be used by companies to offer and sell additional products or services based on the information they have on consumers' payment possibilities, their preferences, tastes and needs. Thus, companies will increasingly compete in the constant improvement of their algorithms and mechanisms to discriminate between consumers according to their possibilities and willingness to pay and their behavior, that is, to encourage them to purchase goods and services they did not intend to consume.⁸⁵

Regarding competition law enforcement, price discrimination is not illegal *per se*, because it does not necessarily generate inefficiencies. According to the Mexican Federal Economic Competition Law, price discrimination is only pursued when it is executed by agents with substantial power in the relevant market and their conduct has the purpose or effect of improperly displacing other market participants, preventing other participants from entering or granting exclusive advantages to a third party.⁸⁶ It is therefore necessary to ask how competition analysis could be applied in digital markets with quasi-individual prices, which will be increasingly frequent, in comparison with traditional markets in which consumers face a more or less common price, which will become less frequent.

Finally, it is necessary to emphasize that, in the context of the digital economy, price discrimination is not the only strategy related to abuse of dominance that may emerge in new ways. There are other vertical restrictions that may appear more frequently in digital markets. Examples of these are:⁸⁷

85 There is literature on the welfare effects of price discrimination. See for example: OFT (2013) or Heidhues (2014). Some authors point out that price discrimination could be more harmful to those consumers who have fewer options or alternatives. This also has implications on social welfare. From the perspective of competition, it could involve including the assessment of the impact of the reduction of options (derived from the transaction) on the welfare of consumers given a reduction of product options, as s part of merger analysis.

86 Federal Economic Competition Law. Articles 53 and 54. Available at bit.ly/2GTauXo.

87 Alexander Italianer (2014). *Competition Policy in the Digital Age*. European Commission. Available at bit.ly/1gYnv2Y and Laura Atlee and Yves Botteman (2013). *Resale Price Maintenance and Most-Favored Nation Clauses: The Future Does not Look Bright*. Available at bit.ly/2FaY03h.

i) Enforcement of “most favored nation” prices: vertical agreements between suppliers and sellers, by means of which one of the parties agrees to guarantee the other the best price in a product or service. An example of these clauses relates to the investigation carried out by the authorities of the United Kingdom and Germany on the agreements between *Amazon* and the vendors of different products via its platform. In this case, the retailers promised not to offer lower prices on platforms different to *Amazon*’s, not even on their own online stores. The authorities determined that this agreement resulted in price fixing among competitors, so *Amazon* eliminated the clause.⁸⁸ Another example is the investigation carried out by the German competition authority against *Booking.com*. The firm was forbidden from imposing clauses that forced hotels to always offer the lowest available price, the largest room capacity and the most favorable cancellation policy in the online and offline market (broad clauses of better price) in its website.

ii) Maintenance of resale prices: the agreements that seek to establish a fixed or minimum price for the resale by a distributor to the final consumer. For example, the UK competition authority launched an investigation in 2010 into the restrictions that *InterContinental Hotels Group* and *Hotel Inter-Continental London Limited* imposed on *Expedia* and *Booking*, which prohibited them from offering discounts on fare prices when users only reserved a hotel room (not a vacation package). This prevented users from benefiting from lower prices.⁸⁹

iii) Restricting or prohibiting sales online or on certain platforms: restrictions imposed by manufacturers to prohibit the sale of their products on Internet sites or on certain platforms. This usually occurs for luxury products. For example, in 2012 *Adidas* only allowed authorized distributors to sell the German brand’s products on the distributor’s Internet sites, but prohibited them from doing so on platforms such as *eBay*, *Amazon* and *Rakuten.de*. *Adidas* also required that customers not reach authorized online stores through platforms that had the logo of sites such as those mentioned above.⁹⁰

88 Alysha Manji-Knight, Davies Ward Phillips and Vineberg LLP (2016). *Most Favored Nation Clauses: A Review of Enforcement Activity*. American Bar Association. Available at bit.ly/2oSzOtu.

89 This investigation was closed in 2014 when the hotels put forth certain commitments. See: Hotel Online Booking: Decision to Accept Commitments to Remove Certain Discounting Restrictions for Online Travel Agents. Available at bit.ly/2F4HKii.

90 OECD (2013). *Vertical Restraints for On-line Sales*. Available at bit.ly/1o4LO4N. Also see: ICN (2014). *Online Vertical Restraints Special Project Report*. Available at bit.ly/2FgWmhV.

In terms of competition, the collection and use of data for the purpose of price discrimination or for the imposition of vertical restrictions, generates certain asymmetries in the market. First, companies have much more information than the users themselves, who often are unaware of which companies have what data and how they are marketed. Second, as a company obtains more information on a customer, it could reduce his or her purchase options, for example, by showing higher prices based on information gathered previously. As the consumer does not have easy access to the “general” price in the market, because she can only see the prices that appear in her individual search, there is less transparency in prices (see section below on handling information).

An example of the latter is the investigation initiated by the British competition agency in October 2017 against Internet hotel search engines such as *Expedia*, *Trivago* and *Booking*. The investigation focuses on the clarity, precision and presentation of information on these sites that, in the authority’s opinion, could confuse people and prevent them from finding the best offer. While the British authority opened this case under the consumer protection law, and not the competition law, the results could shed light on how the presentation of information could limit competition.⁹¹

Given that price discrimination and vertical restraints are not unlawful conducts *per se* (because they can be efficient market strategies), competition authorities could face the challenge of identifying when these behaviors can generate anticompetitive effects in the context of digital markets. The previous is true because these conducts could increasingly become more common and more sophisticated, which could hinder their analysis.⁹² The following section discusses what difficulties the authorities may face when defining a market, when analyzing market power and, if applicable, determining the possible damages to the competition of certain behaviors that require an efficiency analysis.

91 Competition and Markets Authority (2017). *CMA launches Consumer Law Investigation into Hotel Booking Sites*. Available at bit.ly/2y8vrCn.

92 António Gomes, Presentation: “Disruptive Innovation, Big Data and Algorithms”, OECD, 2017.

PRICES AND EARNINGS IN MULTI-SIDED MARKETS: HOW ARE DIGITAL MARKETS DEFINED AND ANALYZED?

As mentioned in the first section of this document, many digital markets have several sides (see Box 6). The challenge of how to define and analyze them emerges, given that prices and profits on the different sides of the market are interlinked.

This is relevant because prices and earnings are two variables traditionally used in the analysis of competition; above all, in the investigation of cases of abuse of dominance and in merger analysis, where said variables are used to: i) define relevant markets and (substantial) market power; ii) analyze possible risks such as increases in prices and loss in efficiency.

Defining a relevant market usually involves the analysis of at least two dimensions: the product dimension and the geographic dimension. The former refers to a set of products or services that have some interchangeability according to the purposes for which they were manufactured, considering characteristics of price, use and quality. The latter refers to the feasibility of the exchange between said products given the location of those who offer them.

So, the analysis of these two dimensions in the context of digital markets requires rethinking some of the methods used to delimit them. For example, in terms of product dimension, cross-elasticity analysis of products,⁹³ and of the hypothetical monopolist (Small but Significant Non-Transitory Increase in Price, SSNIP), imply a price analysis. However, in multi-sided markets, prices paid by users in one (or more) side(s) of the market can be zero - at least apparently. In the same way, although the price level is still relevant, the price structure (price relationship between the different sides of the market) also gains importance for the analysis. Therefore, considering all the users involved and understanding the indirect network effects that may occur among them is relevant for the definition of a relevant market in these cases.⁹⁴

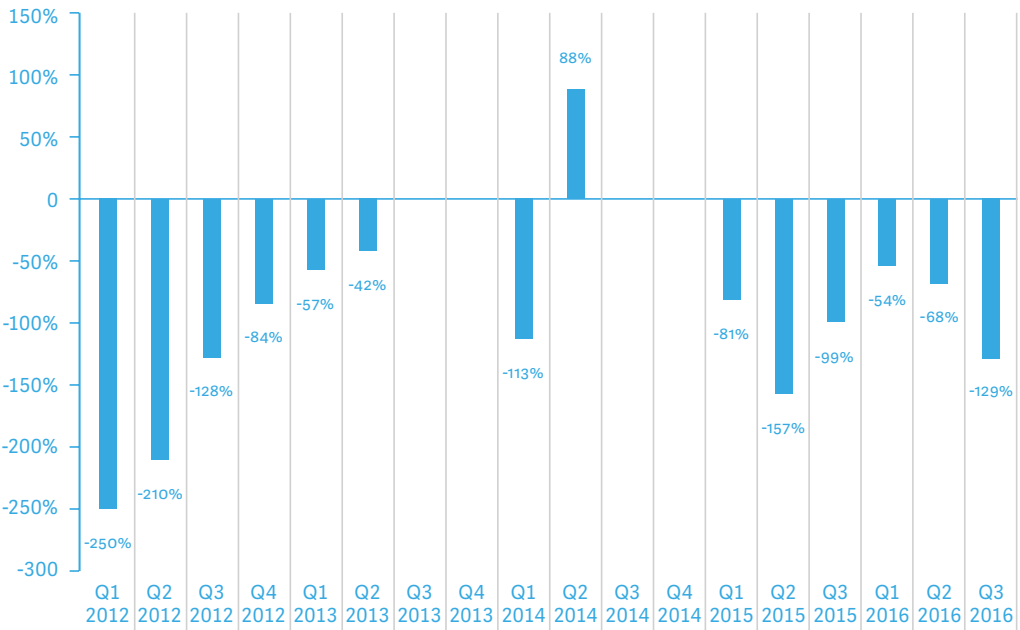
⁹³ Cross-elasticity measures how much the quantity demanded of a good or service increases or decreases, due to the change in the price of another complementary or substitute good.

⁹⁴ For an explanation of the challenges when defining a relevant market in multi-sided markets, see: OECD (2017), *Market Definition in Multi-Sided Markets – Note by Sebastian Wismer y Arno Rasek*. Available at bit.ly/2FLQLOt.

Regarding the location of the suppliers, the low costs of providing a good or service via digital means in a place distant from where said good or service is produced –a characteristic of these markets– broadens the geographical scope of the markets, making their delimitation difficult.

Analyzing market power has traditionally involved, among other variables, a review of the firm’s earnings. In fact, the definition of the exercise of market power –and even more so when it involves anticompetitive behavior– is related to the generation of “extraordinary earnings”, that is, higher profits than those possible under competitive pressure. However, many digital companies usually have negative or very low earnings for long periods after the start of their operations (see graph 1 below for the *Uber* case).⁹⁵

Graph 1. *Uber* Losses as a Percentage of Net Revenue



Source: Nera with data from Business Insider. The blank spaces show the unavailability of data.

Negative earnings –at least for a period time– respond to the fact that platforms must reach a critical mass of users on one or several sides of multi-sided markets for the business to be profitable. The validity of an analysis that only considers earnings on one side of the market versus the convenience of considering more sides, should be assessed. This question is intimately related to the way in which the market analyzed

⁹⁵ Also see *Twitter*, *WhatsApp* case.

will be defined; also to the fact that platforms may initially incur in negative earnings when seeking to increase the number of users with the purpose of building an important source of information which over time, accumulates value and can eventually be commercialized.⁹⁶

Furthermore, market shares are traditionally used to determine a firm's market dominance. As previously mentioned, in the context of digital markets, the existence of network effects or platforms can accelerate the growth of a company, and grant the firm a high market share in a short period of time. This could compel us to rethink how market share is analyzed, how it relates to market power and even rethink which variables define substantial market power, considering the structure of the digital markets. For example, the German competition authority has already reformed its regulations to include new criteria to complement market power analysis. These new criteria include: direct and indirect networks effects, parallel use of multiple services and switching costs for the user, economies of scale in relation to network effects, access to information relevant to competition, and competitive pressure derived from innovation.⁹⁷

Lastly, **analyzing possible risks to competition and efficiency gains** in digital markets could require considering other variables that determine the possibility of competing and being efficient in a digital market: variables such as possibility for innovation, access to information, protection of personal data and market data, the different roles that participants undertake in the market and their relationships, among other aspects that traditionally have not been the spotlight of the methodologies used for the evaluation of competition conditions in markets. For example, *Apple* is a platform, a vendor of IT products and the provider of *iCloud* service (an IT infrastructure).⁹⁸

Given that, as previously mentioned, the participating companies often do not charge a price directly to users nor have earnings for long periods of time, understanding how companies compete and where competition occurs becomes relevant. For example, do Internet sites where users do not pay to perform searches, compete for advertisers? For visitors? Or for both?⁹⁹

96 Hogan Lovells (2017). *Focus on Regulation. Digital is Trump! –Market Definition and New Dominance Criteria for Digital Markets*. Available at bit.ly/2FJtxs6. Also see: Monopolkommission (2015), *Competition Policy: The Challenge of Digital Markets*. Special Report No 68, p. 29. Available at bit.ly/2GV9xm3.

97 Heinrich, Christoph (2017). *The New German Competition Law in a Nutshell*. Lexology. Available at bit.ly/2oHYLrD.

98 OECD (2016). *Big Data: Bringing Competition Policy to the Digital Era*. Available at bit.ly/2uA6ddK.

99 Lawrence Wu's conference, based on *Competing in 2020: Winners and Losers in the Digital Economy*, Harvard Business Review.

Moreover, investigation of anticompetitive conducts –especially of relative monopolistic practices (unilateral conducts and abuse of dominance)– faces the challenge of analyzing and imputing damages to the market in terms of variables other than price. For example, how should anticompetitive practices that exclude the competition be analyzed if the competitive price is zero, when traditionally, these are analyzed taking into consideration a firm with market power setting prices below the competitive level to displace its competitors?

Thus, recognizing that there may be several groups of consumers with related demands, becomes the basis of the analysis of many digital markets. This ensures that law enforcement does not have unintended consequences such as the reduction of total consumer welfare by generating a greater negative impact on one or more groups or sides of the platform, than the benefit it generates for another group.¹⁰⁰ This requires considering that the conditions in one market or on one side of the market have effects on the conditions in other markets or on another group of users, including on price structure, or other factors relevant to competition.

In this sense, the challenge lies in adapting the methodologies used to include new characteristics and variables that are particularly relevant in the context of the digital economy in the definition of the relevant market, with the understanding that the analysis will tend to be less based on variables such as price, margins and earnings.¹⁰¹

MERGERS AND ACQUISITIONS: A MEANS TO ELIMINATE COMPETITION?

Merger control is one of the foundations of competition policy. It is therefore important to understand their nature in the context of the digital economy. Merger analysis allows market structures that could damage consumers and/or facilitate occurrence of anticompetitive conducts, to be blocked. The investigation of unlawful mergers allows for the penalization of operations that hinder, harm, impede or diminish competition in a market. The ultimate goal is that the intensity of competition in a market not be negatively affected by a merger, acquisition, association or any operation that amalgamates two or more companies.

¹⁰⁰ For a discussion on the challenges competition policy is faced with in multi-sided markets, see: Evans and Schmalensee (2013). *The Antitrust Analysis of Multi-Sided Platform Businesses*. pp. 37-38. Available at bit.ly/2GRdZ4U.

¹⁰¹ For example, see: OECD (2017). *Rethinking the Use of Traditional Antitrust Enforcement Tools in Multi-Sided Markets*. Available at bit.ly/2CRUjeS.

In the context of the digital economy, some mergers could at first glance lack economic rationality. For example, why would a company pay a large amount of money for another that operates at a loss?¹⁰² However, these types of operations make sense if they are rethought as a means to eliminate potential competitors. From this perspective, companies could be willing to shoulder high costs of an acquisition, in order to avoid the future loss of profits derived from competition in subsequent periods.

Therefore, the digital context may require paying special attention to the *defensive conduct to ensure a monopolist position* (when one company buys another only to preserve its monopoly power in a market). Firms, for example, could acquire new or potential competitors in the early stages of their development to eliminate them. That is, absorb small competitors that pose a threat to avoid competing with them later.

This is especially interesting in the case of digital markets, because larger companies (especially incumbents in traditional markets) do not always have the capacity to innovate at the same speed as new or smaller companies. They may therefore seek to innovate through an acquisition, but the acquisition may also take place to prevent dissemination of the innovation.¹⁰³ Consequently, the acquisition of a small technology company could improve innovation in the economy, since the company that acquires it may have more capital to disseminate said innovation. However, there is a latent risk that the acquisition of a company causes stagnation in the market if the innovation it developed is not used by the acquiring company. Given that in the digital context the main risk of established agents are small companies with the power to challenge the traditional business model, an acquisition could be a strategy to face the threats derived from innovation.

Hence the importance of monitoring this type of operations, not only because they could reduce the number of competitors and the current intensity of competition in the market, but also because they could discourage innovation in the long term and therefore affect the conditions of market entry and competition in the future. Therefore, when analyzing market power derived from this type of merger, the long-term effects on market behavior and dynamic competition become more relevant than when looking at traditional sectors.

¹⁰² See the case of Facebook's acquisition of WhatsApp for 19 billion dollars in 2014, when the latter had revenues of only 1.2 million dollars. See: Olson, Parmy (2014). *Facebook Closes \$19 Billion WhatsApp Deal*. Available at bit.ly/2oKyjgX.

¹⁰³ It is true that there are many innovations that are possible due to the large size of companies. However, because new companies have no sunk costs in any specific technology (because they have no considerable prior investments) they have the possibility to innovate at a greater speed, thus pressuring the market as a whole and driving the effort to innovate.

For merger analysis in the digital markets, in addition to taking into account the joint market shares of the concentration, knowing and understanding the direct and indirect network effects, economies of scale, access to data and the potential for innovation might also be necessary. A second challenge for merger control, associated with the previous point, is that normally when the innovator is acquired, it is only in the first phase of the disruption. Therefore, there could be little information about its potential and, therefore, it could be difficult to assess whether the purchase would prevent the second phase of the disruption from happening (see Box 2).

Moreover, merger analysis could face a major challenge in the short term given that the tools that allow for a better evaluation of these types of variables are barely in the early stages development. Such is the case of the techniques for the definition of multi-sided markets and the application of models that allow for the prediction of the evolution of innovation.

Lastly, it is important to note that competition authorities may lose sight of some mergers or acquisitions involving small, innovative companies, that may be anticompetitive. This may occur because notifying these operations to authorities may not be required due to their size. It could therefore be relevant to develop monitoring procedures to identify these cases, promote voluntary merger notification and/or rethink the criteria established by the regulations for the notification of operations.

INFORMATION MANAGEMENT: PRIVACY OR COMPETITION ISSUE?

As previously explained, data collection plays an important role in digital markets. Companies such as *Facebook*, *Amazon* and *Google* have grown, in large part, due to the collection and sale of users' information. Regarding this point, there have been recent discussions about whether the use of information collected by agents should be regulated to protect the privacy of users, but also to guarantee the competition process. Regarding the privacy of information, some authorities have published guidelines in the context of the digital economy. In Mexico, the National Institute for Transparency, Access to Information and Protection of Personal Data (INAI) published, in December 2017, recommendations to prevent risks in the use of applications for private passenger transport services and recommendations to users of social networks for the protection of their personal data.¹⁰⁴

¹⁰⁴ See press release on private passenger transportation service application in Spanish at bit.ly/2F1RUEX and press release on social networks in Spanish, available at bit.ly/2Fepugv.

In terms of guaranteeing competition, as explained in previous sections, information can become an entry barrier, since it can be used by dominant agents to displace other competitors or prevent the entry of new competitors. Furthermore, information can be used to facilitate the creation of collusive agreements. In case a regulation on the collection, management, use, and commercialization of information is considered, the question that emerges is: how should this regulation be designed?¹⁰⁵

As an example of the above, the German competition authority initiated an investigation to determine whether *Facebook* infringed the competition law through its clauses of collection and use of user data. With a 90% market share, *Facebook* is the dominant social network in Germany. The authority accuses the firm of using said dominant position to condition its service to user consent of the use of their data, even outside the application (“*off Facebook*”). That is, by accepting the terms and conditions of the service, users accept that *Facebook* makes use of their data when they browse outside the application, for example, in services such as *WhatsApp* and *Instagram*, which belong to the same company. Therefore, the platform uses its dominance as a social network to consolidate its position as a dominant advertising provider.¹⁰⁶

Although the investigation has not concluded, it represents an invitation for competition authorities to reflect on how the use of data by a dominant company can infringe the competition law, regardless of the dilemma of privacy protection and personal data. Thus, the question arises whether competition policy should seek the protection of users and their data when they are faced with situations in which companies have much more power than users, as could be the case of *Facebook*. However, the challenge also lies in avoiding that firms that depend on data use are affected or limiting availability of information that could favor the efficiency of companies without infringing competition law.¹⁰⁷

As previously explained, in multi-sided markets, the price paid by users on one side of the market can be zero. In return users may allow their personal data to be collected, which implies that information becomes a “means of payment”. In this sense, recent literature links the intensity of competition with the amount of personal information collected by dig-

105 The Media Policy Project Blog (2016). *Data protection through the lens of competition law: will Germany lead the way?* Available at bit.ly/2lkWUXQ.

106 Karenfort, Jörg and Hainz, Josef (2017). *Relationship between Data Protection and Competition Laws*. Available at bit.ly/2F7bH1e. Aoife White, Karin Matussek and Stephanie Bodoni (2017). *Facebook Under Fire as German Antitrust Cops Target Ad Model*. Available at bloom.bg/2kPv5XR.

107 Idem.

ital platforms. Dimakopoulos and Sudaric (2018), posit that the amount of data collected increases as the platform gains market power on either side of the market. Thus, an over-provision of personal data may be reached, depending on the network effects on each side of the market and the intensity of competition in these. That is, users could be providing more data to firms as they acquire greater market power. Hence the importance of maintaining competitive conditions on multi-sided platforms.¹⁰⁸

Additionally, it is noteworthy that one of the ways in which companies can differentiate themselves to attract a greater number of users is through their personal data protection policy (certain users will prefer to use platforms that offer better policies when it comes to the use of their personal data). It would seem that the protection of personal data becomes a variable of quality through which companies compete. It could then be assumed that, just as an increase in the intensity of competition would generally increase the quality of a product or service in a traditional market, in the case of digital markets the protection of personal information could be improved. However, there is literature that shows that the correlation between competition and quality is not necessarily positive, especially in more complex markets (such as the digital markets).¹⁰⁹ Therefore, from this last perspective, we could not necessarily assume that greater competition will lead firms to offer users better policies to protect their personal data.

REMARKS

As this section elucidates, the growing importance of the digital economy imposes important challenges for competition policy enforcement. Currently there is a debate about what role should be taken by competition agencies before the consolidation of technology “titans” such as *Google*, *Facebook* or *Amazon*. There is a justified fear about the possibility that these companies could make use of their market power to the detriment of the consumer. In that sense, the dilemma faced by the agencies revolves around how to prevent this from happening without unnecessarily limiting innovation and competition in the future.¹¹⁰ Therefore, intervening in a timely manner can be decisive, since doing so when it is too late could result in market structures with many risks to competition.

¹⁰⁸ Philipp Dimakopoulos and Slobodan Sudaric (2018). *Privacy and Platform Competition*. Available at bit.ly/2oAievo.

¹⁰⁹ See, for example: Ezrachi and Stucke (2014), *The Curious Case of Competition and Quality*. Journal of Antitrust Enforcement (2015) doi: 10.1093/jaenfo/jnvo23; University of Tennessee Legal Studies Research Paper No. 256; Oxford Legal Studies Research Paper No. 64/2014. Available at bit.ly/2t74dJX.

¹¹⁰ See, for example: The Economist (2018). *How to Tame the Tech Titans The Dominance of Google, Facebook and Amazon is Bad for Consumers and Competition*. Available at econ.st/2rkjB4R.

This beckons us to reflect on whether the tools available to authorities are currently sufficient to fulfill the task of guaranteeing competition in this new digital era. In this sense, two positions can be identified on the effectiveness of the tools available to competition agencies: those who believe that these are sufficient and should only be applied effectively (and creatively) in these new markets,¹¹¹ and those who believe that these must be reformed to face new problems, such as those discussed in this section.¹¹²

In the latter instance, the question as to what changes should be undertaken to equip agencies with the necessary powers in this new context, arises. In this regard, the German competition authority has undertaken some actions. The changes to the German Act against Competition Restraints, which entered into force on June 9, 2017, mainly consider the following: i) market shares cease to be conclusive to assess a firm's market power, thus incorporating in their analysis switching costs, network effects, multi-homing, access to data and competitive pressure derived from innovation; ii) incorporating the analysis of markets that do not involve monetary exchanges –which offer products or services at “zero price”– to analyze the possible anticompetitive practices of digital platforms; iii) investigation powers are granted to the competition authority to analyze repeated violations of the consumer protection law, for example, the terms and conditions regarding the provision of a service, and; v) a threshold is included for merger analysis based on “the value of the transaction”.¹¹³ An example of the above is the case of the merger between *Facebook* and *WhatsApp*. *Facebook* acquired *WhatsApp* in Germany for 22 billion dollars. The transaction did not require notification because it did not exceed the thresholds established in the regulations. However, the merger was reviewed by the German authority, given the market shares of these companies in three countries of the European Union.¹¹⁴

Undoubtedly, the debate on possible reforms to competition regulations in different countries to adapt them to the context of the digital economy will continue to occupy an important place on the agenda.

111 See, for example: John Mayo's presentation in the *Jornada por la Competencia 2017* (2017 National Competition Day). Available at fb.me/cofece.

112 See, for example: Khan (2017). *Amazon's Antitrust Paradox*. The Yale Law Journal. Available at bit.ly/2iCbsVH.

113 This last point is based on other jurisdictions (such as the United States' jurisdiction), where the size of the transaction is considered when, regardless of not complying with the threshold of invoices for notification to be mandatory, the merger may put competition at risk. Christoph Heinrich (2017). *The New German Competition Law in a Nutshell*. Lexology. Available at bit.ly/2oHYLrD.

114 Frank Röhling and Christoph Hinrichsen (2016). *Germany Merger Control Update: New Merger Control Threshold will Take into Account the Size of the Transaction*. Lexology. Available at bit.ly/2taoo8o.

4

**FINAL REFLECTIONS:
PROTECTING COMPETITION IN
THE **DIGITAL ECONOMY** FOR
THE BENEFIT OF CONSUMERS**

In any competition policy decision, there are two types of risks: i) punishing or inhibiting behaviors that are not strictly contrary to competition, and ii) not punishing behaviors that are anticompetitive. While this problem is not specific to digital markets, given that some of them change so rapidly, the likelihood of making such an error in these markets could be greater compared to that of making said error in traditional markets.¹¹⁵

The main challenge is to choose between, at least, two possible positions discussed throughout this document, in the face of competition problems that may arise in the digital economy. First, allow the digital markets to *discipline* themselves through competition, avoiding market distortions caused by possible actions by the authority. This can be achieved through the adequate exercise of the *ex-post* powers of competition agencies to investigate and sanction any anticompetitive conduct that may arise.

Second, choose to believe that digital markets tend to lack competition, especially those with the presence of platforms, and assume a more active role through regulation. This would imply, for example, making use of tools that have been used in markets such as water, electricity, railways, telephone services, among others, where the traditional approach to the accelerated growth of companies has been to regulate them in order to prevent abuse of their monopoly power.

¹¹⁵ Lawrence Wu's conference, based on *Competing in 2020: Winners and Losers in the Digital Economy*, Harvard Business Review.

This stance would involve, for example, the imposition of non-price or service discrimination policies on platforms or firms with substantial market power. An example of this could be a non-discrimination policy that prohibits *Amazon* from privileging its own assets or discriminating between producers or consumers.¹¹⁶ This strategy would require the use of competition policy tools with which many agencies, including COFECE, are endowed. An example of this is the power to investigate and determine the existence of essential facilities (or essential inputs) or barriers to competition and, when appropriate, establish measures to avoid the anticompetitive effects derived from them.

However, the results of regulation have not always been as expected. Therefore, while some propose to regulate the dominant companies in digital markets, others doubt its effectiveness (for example, due to the ease of falling into regulatory capture, or the possibility that another innovation may eliminate an incumbent's dominance at any time). Additionally, the discussion on regulations regarding privacy, ownership of data, portability, and interconnection, which generally find support among regulators and users, should not be overlooked. It is necessary to bear in mind that the correct design of rules and institutions for their implementation is essential to ensure their effectiveness.¹¹⁷

In any case, the analysis of digital markets from a competition point of view involves new and complex questions. Firstly, it is pertinent to examine the analytical tools that competition authorities traditionally use for the definition of markets, calculation of market power, study of efficiencies, determination of unlawful behavior and investigation of new forms of collusion, among others. Moreover, even when the authority has all the tools and powers to detect and correct an anticompetitive conduct or structure, its intervention requires a more delicate analysis of the effects it may have on the market.

Three scenarios can be outlined in which competition authorities may face challenges in their analysis of the digital economy framework.¹¹⁸ First, that the authority does not identify a competition problem in a specific market, when it in fact exists, due to the lack of tools to do so. This requires an analysis of whether the authorities' current tools and powers are adequate and adaptable to the context of the dig-

116 Khan (2017). *Amazon's Antitrust Paradox*. The Yale Law Journal. Available at bit.ly/2iCbsVH.

117 Shapiro (2017). *Antitrust in a Time of Populism*, pp. 27-28. Available at bit.ly/2ioclHU.

118 Ezrachi and Stucke (2016). *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*.

ital economy. The cases resulting in fines in some jurisdictions¹¹⁹ are a sign that, in principle, the authorities can deal with competition problems with the set of tools already available.

Second, even when the authority identifies the problem, it does not have the tools or powers to face it or solve it. This would require rethinking and even transforming the powers and tools that competition authorities are equipped with. Therefore, given the complexity involved in this type of change, in the short term, it seems viable to use the instruments currently available in an innovative and creative way, without losing sight of the latent emergence of anticompetitive problems and behaviors that require adaptation of the competition legal framework.

And third, a scenario in which, even when the competition authority or regulators do have the tools, there could be the possibility that the intervention of the authority could generate an important distortion to the market. The careful analysis of the possible effects of these interventions in advance is a way to avoid this type of scenario. In addition, considering the revision mechanisms in advance and, when appropriate, correcting the effects that these measures may have on the market, may possibly mitigate the perpetuation of distorting measures.

¹¹⁹ See the case of the European Union against *Google*, in which the regulator sanctioned the search engine with a record fine for abuse of dominance.

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