WORKING PAPER

Digital Economy and Competition:

digital platforms' main aspects under competition perspective

ICC BRASIL
INTERNATIONAL CHAMBER OF COMMERCE
The world business organization

SUMMARY

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1. ABOUT ICC

Created in 1919, the International Chamber of Commerce ("ICC"), has the mission of promoting an increasingly open, transparent, sustainable, and inclusive international trade. In Brazil for 5 years, the organization brings together more than 200 members and has been working in favor of key themes for the country's economic and social development.

Economic growth depends fundamentally on a healthy competitive environment. Competition laws are a key factor in ensuring that all companies of all sizes can operate and compete under the same conditions, reducing market distortions.

Historically, ICC has developed practical tools, such as the **ICC Antitrust Compliance Toolkit**, designed to promote the importance of compliance programs in competitive matters.

In Brazil, the ICC Competition Commission has played an important role in liaising between the private and public sectors for the constant strengthening and evolution of the competitive environment. Last year, during the first ICC Brazilian Competition Day, an event that brought together several Brazilian and foreign experts and competition authorities, the organization launched the **Queries Suggestion Guide for Senate's confirmation session of Administrative Council for Economic Defense's ("CADE") appointed officials**. The document gathers 28 suggested questions for senators to include in their roadmaps when evaluating an appointment of the Brazilian antitrust agency's new member.

PRESENTATION AND ACKNOWLEDGMENTS

Having identified a shortage of materials compiled in Brazil aimed at economic agents on the subject of digital platforms from a competitive perspective in a context in which the digital economy assumes an increasingly relevant role in the market, coupled with a scenario of countless concerns arising from it, ICC Brazil, through its Competition Commission, understood that it was opportune to create a specific Task Force to study the topic in-depth and carefully and prepared this Working Paper.

Objective and direct, the project proposed and accepted by the working group consisted in mapping and systematize the main aspects of the digital platforms and its functioning under the competitive perspective, focusing, especially, in the implications brought by this subject for the Brazilian landscape, in view of the Brazilian antitrust scenario given the performance of the national antitrust authority, CADE.

Thus, this Working Paper aims to present the results of the studies carried out by the Task Force, to contribute with a technical and assertive approach to help economic agents to better understand a topic of great relevance. It is important to clarify that the work does not intend to exhaust the subject or respond to numerous challenges involving digital platforms in the competitive scope, nor has the intention to impose any forms of action to economic agents or CADE in relation to the matter discussed.

As explained, the main objective of the Working

Paper is to identify, organize, and present, in one practical and objective approach, the main features of the digital platform and its operation in a market environment under a competitive perspective, with the potential to become an useful and valuable reference to the economic agents, directly contributing to the understanding of the subject and, indirectly, to encourage a positive business environment in the country.

This Working Paper was prepared by the members of the Competition Commission Leadership of ICC Brasil - Eduardo Caminati Anders (Chairman), Fernanda Letícia Graça Esperança (Vice-President) and Guilherme Teno Castilho Misale (Executive Secretary) - and by the Coordinators of Task Force - Ana Cristina von Gusseck Kleindienst and Paulo Casagrande, in addition to the following professionals who joined the Task Force: Ana Paula Tavassi, Cristianne Zarzur, Enrico Romanielo, Fernanda Garibaldi, Gabriel Araújo Souto, Isadora Telli, José Inácio de Almeida Prado Filho, Lílian Cintra de Melo, Marcela Mattiuzzo, Maria Amaral de Almeida Sampaio, Michelle Marques Machado, Paula Camara, Paula Pedigoni, Pedro Santiago, Ricardo Botelho, Tatiane Kimie Siqui, Vinicius Ribeiro, Vitória Oliveira, Yasmine Nemer Hajar.

We wish a good and useful reading to all!

Leadership of the Competition Commission

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2. INTRODUCTION

A) SCOPE AND RELEVANCE OF DIGITAL PLATFORMS

Markets and, mainly, digital platforms have received increasing attention in the world, either by civil society or by regulators and economic agents. The impact generated by digital platforms in the business environment is indisputable. As an example, it is worth highlighting the evolution in forms of communication and the experience of interaction between consumers and users, notably concerning access, dissemination, and distribution of information, data, and content in traditionally established markets that, in the contemporary scenario, are constantly challenged, evoking new logics and operational models.

This process of change in the formatting and conformation of different types of economic and social relations became operational based on the particular character of digital platforms, especially as spaces for simultaneous interaction between multiple groups of users, creating value for companies and consumers through their traffic and use. The action and transformation provided by digital platforms are part of a dynamic reality, which deserves to be well understood by economic agents to regularly guide their activities.

Especially to consumers and agents traditionally established, platforms can become viable as generators of beneficial effects. New platforms can cause "disruption" in markets due to the strong competitive pressure they exert, significantly changing their dynamics, as well as serving as a mean for the creation and development of new forms of business - in principle, more efficient - for established industries.

However, it cannot be assumed that the operators of these platforms have entirely "neutral" interests as networks of interactions, especially when considering vertical structures, in general, operating in related markets. In fact, a series of investigations for alleged anti-competitive practices (such as practices related to tying, discrimination against competitors, leverage, among others) were initiated by competition authorities in various jurisdictions, based on complaints from both consumers and traditional players.

Under this scenario, this Working Paper, prepared by the Task Force on Digital Economy of the Competition Commission of the ICC in Brazil, seeks to bring a general and panoramic introduction to a current issue, presenting the main axes and attributes of digital platforms, as well as its operation in the market environment from a competitive perspective. With this, we seek to add a technical and objective perspective to the subject, to serve as a useful reference for economic agents, especially. The emphasis of the work is on the implications for the Brazilian reality and the possible ways in which CADE can operate.

To facilitate the organization, this Working Paper is structured in three thematic sections: (i) addressing the general economic characteristics and functioning of digital platforms; (ii) main competitive aspects in the analysis of digital

platforms; and (iii) difficulties and hot topics in the application of antitrust law to digital markets and platforms. These three sections will be addressed in the sequence of this Introduction, which still goes on with brief notes.

B) RECENT GOVERNMENT INITIATIVES

The emergence and accelerated development of digital markets have created new challenges for the defense of competition, which have been the subject of deep discussion in forums and meetings of several competition authorities around the world, including the production of numerous studies, reports, papers, etc.

In September 2019, CADE, in cooperation with competition authorities from Russia, India, and South Africa, published the report "BRICS in the Digital Economy: Competition Policy in Practice", which provides an overview of defense competition and enforcement in digital markets in those countries. The document addresses topics such as market power analysis, innovation and dynamic competition, algorithms and big data, and acquisitions by dominant start-up platforms with a rapidly growing user base and significant competitive potential.

Still, in 2019, the European Commission published the report "Competition Policy for the Digital Era", which analyzes how the defense of competition must evolve to stimulate pro-consumer innovation in the digital age. The report argues that antitrust provides a solid and flexible enough basis to protect competition, however, some refinements and adaptations of its traditional concepts and tools are needed.

In the opposite direction, in the United Kingdom, an independent commission faced the same theme in the report "Unlocking Digital Competition: Report of the Digital Competition Expert Panel" (2019), which suggests that the current antitrust tools are not enough to deal with the concentration existing in digital markets, creating uncertainties and late responses. Alternatively, the report recommends the establishment of a unit aimed at digital markets, either as a specific regulatory authority or as part of the Competition Markets Authority and/or the Office of Communications **[1].**

Besides, in September 2018, the Federal Trade Commission, in the United States, initiated the public consultation "Competition and Consumer Protection in the 21st Century". Among the topics discussed, the following stand out: (i) the analysis of market power and barriers to entry and the examination of collusive, exclusionary, or predatory conduct on platforms; (ii) the intersection between competition, privacy, and big data; (iii) the role of intellectual property and the defense of competition in promoting innovation;

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[1] The report proposes the creation of the Digital Markets Unit, recommending that the analysis of mergers in the digital market be redesigned to preserve competition "for" the market. Competition "for" the market refers to the dispute to create a new market and is generally associated with the innovation process that brings new technologies of displacement to the market. In turn, competition "in" the market is the conventional view of competition that focuses on the actions of players in established markets. Thus, competition "for" the market (and the consequent creation of a monopoly agent) may be desirable when competition "on" the market is impracticable or impractical. In the control of conducts, the proposals are restricted to procedural aspects (such as anticipation of protection and adjustments in the criteria for filing appeals). UNITED KINGDOM. Digital Competition Expert Panel. Unlocking Digital Competition. 2019. Available at: https://bit.ly/2Xi7djA

and (iv) the implications of using algorithmic decision-making tools, artificial intelligence and predictive analysis for consumer well-being.

Although the growing importance of the digital economy has the most diverse repercussions, the use and processing of data is certainly a convergent element. If, on the one hand, the wide dissemination of data seems to be desirable, on the other, the protection of privacy, the possibility of collusive conduct in data sharing, and the importance of encouraging investment in data collection and processing technologies generate concerns.

In this sense, the Japanese authority published the "Report of Study Group on Data and Competition Policy" (2017), which deals with the defense of competition regarding the use of personal data. In turn, the German (Bundeskartellamt) and French (Autorité de la concurrence) authorities, in the previous year, jointly published the report "Competition Law and Data" (2016), which also addresses the interaction between personal data, market power, and antitrust.

Still, at the multilateral level, it is worth noting, referentially, the Organization for Economic Co-operation and Development ("OECD") published the report "An Introduction to Online Platforms and Their Role in the Digital Transformation" (2019), "Rethinking Antitrust Tools for Multi-Sided Platforms" (2018) and "Market Definition in Multi-Sided Markets" (2017), which also investigate how competition authorities may respond to the challenges of digital platforms, characterized as multi-sided markets. In such reports, ways are suggested for the tools of antitrust law to be reinterpreted, considering the peculiarities of these new markets.

C) PARTICULARITIES OF BRAZIL AND THE CADE

According to the Brazilian Institute of Geography and Statistics ("IBGE"), 79.1% of households used the Internet in 2018. The most used equipment to access the Internet was the cell phone, found in 99.2% of the households with a service. The second was the microcomputer, found in 48.1% of these homes**[2]**. Also, Brazil is the leading country in Latin America in e-commerce purchases, with approximately 80 million consumers**[3]**. In this scenario, the number of cases involving digital platforms before CADE is growing, in number and relevance, both in the control of structures and in the control of conducts.

The report on the defense of competition in Brazil, published by the OECD (2019), highlights, among other topics, CADE's efforts to address the challenges presented by the digital economy. As a reference, according to the OECD, the notification criteria for mergers in Brazil restricted to the turnover of companies / economic groups - and not to the value of the assets involved in the transaction - may exclude relevant acquisitions from CADE's

[2] Brazilian Institute for Geography and Statistics (IBGE) Agency News, "Continuous National Household Sample Survey (PNAD Contínua TIC) 2018: Internet reaches 79,1% of Brazilian households". Portuguese version available at: https://bit.ly/2DnI6WB

[3] Brazilian Micro and Small Business Support Service (SEBRAE), "What do you need to know about electronic commerce". Portuguese version available at: https://bit.ly/30e9sWM

analysis in the digital market**[4].** It should be noted, however, that Article 88, paragraphs 1st and 7th, of Brazilian Competition Law nº 12.529/2011 ("LDC") allows CADE to analyze transactions that do not meet the turnover criteria for prior notification, within 1 year as of its consummation. In this regard, the sufficiency of the criterion of turnover to capture economic concentrations in digital markets has been the subject of fruitful discussions in other jurisdictions, as will be discussed below, exemplifying, an important subject resulting of this new reality coupled to the digital economy.

Regarding the protection of personal data, Brazilian Law nº 13.709/2018 (Brazilian General Data Protection Law or "LGPD") **[5],** partly inspired by the General Data Protection Regulation ("GDPR") of the European Union, establishes a specific regime for the processing of personal data and provides for the creation of the Brazilian National Data Protection Authority ("ANPD") with supervisory and sanctioning powers. Finally, in June 2019, the Brazilian government enacted Brazilian Decree nº 9.854/2019, which establishes the National Internet of Things ("IoT") Plan, and highlights the intersection between competition, privacy, and big data.

In this context, CADE will certainly be an important interlocutor with the ANPD for the establishment of applicable rules and policies, for example, the definition of limits for the use of personal data, protocol for standard interoperability, and data portability. How this interaction will take place is still an uncertainty, but effective coordination is expected to guarantee legal certainty and the necessary security for the development of digital markets and the improvement of the business environment, competitiveness, and consumer protection.

3. MAIN FEATURES OF THE DIGITAL PLATFORMS

According to the OECD, digital platforms are defined as "a digital service that facilitates interactions between two or more distinct or interdependent sets of users (whether companies or individuals) who interact through the service via internet".**[6]** Examples of digital platforms include: search tools, social networks, e-commerce platforms, assets' sharing systems, app stores and price comparison websites.

Platforms generate value by reducing the transaction costs related to the coordination between different groups of consumers, facilitating the interaction (matching) between them and enabling both sides or more to obtain gains. If not for the platform, customers would not be able to take advantage of this connection, or would do so at a much higher cost.

[4] ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD). Peer Reviews of Competition Law and Policy in Brazil. 2019. Available at: https://bit.ly/30ds35k

[5] The enforcement of some provisions of the mentioned Law was postponed to August 2021.

[6] ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD). An Introduction to Online Platforms and Their Role in the Digital Transformation What is an "online platform?". 2019. Available at: <https://doi.org/10.1787/ce563d16-en>.

For this reason, platforms are considered "two-sided markets" or "multi-sided markets", depending on the scope, in which different sets of agents can interact and even carry out economic operations through the platform provider.

Platforms provide means by which a group of users adds value to another group of users from the same platform, at the same time in which the expansion in the number of users enhances the value and usefulness of the platform itself. The consequence is the development of an interdependency between these subjects: complementary product suppliers and final consumers (e.g., game developers and gamers); advertisers and readers; buyers and sellers; people searching for a job and recruiters; hotels and tourists; drivers and passengers. The higher the number of users in one side, the higher the platform's value on the other side, generating network effects. In other words, one consumer group's demand is related to another consumer group's offer in the platform and vice versa.**[7]**

With these initial clarifications on general features of platforms, this section will cover (i) types of digital platforms, explaining aspects related to their level of coverage and sectors of activity; (ii) main economic features of digital platforms, exploring issues related to the capture of network externalities, pricing and impacts derived from intensive data use.

A) TYPES OF DIGITAL PLATFORMS

Digital platforms are very different from each other – either because of its size, or due to its features – making it difficult to categorize it. In practical terms, this difficulty is reflected in the existence of several classifications (e.g., coverage levels, sector of activity, capacity to define prices and others).

In regards to the classification based on the level of coverage, platforms may grow and expand to a point in which they become ecosystems, in the sense of communities for the development of related applications (i.e., software development forums based on specific frameworks, such as .NET or Java; operational systems developed from centralized application distribution systems, such as Android and iOS). The interaction between administrators, developers and users in these ecosystems makes the decision-making process for the development of the platform more complex.

Besides that, digital platforms can be used in different markets and serve different purposes. The table below summarizes the main applications and provides examples of companies in each of these applications, in Brazil and other countries:

[7] EUROPEAN COMMISSION. Communication on Online Platforms and the Digital Single Market Opportunities and Challenges for Europe. 2016. Available at: <https://ec.europa.eu/digital-single-market/en/news/communication-online-platforms-and-digital-single-market-opportunities-and-challenges-europe>.

MAIN APPLICATIONS	COMPANIES
Marketplaces (e-commerce)	Amazon, B2W, Ebay, Lojas Americanas, Magazine Luiza, Mercado Livre, OLX, ViaVarejo
Content distribution (including advertising)	Apple, Google, Yahoo!, Microsoft, Spotify, YouTube, Netflix
Shared use of assets	99, Airbnb, Cabify, Rappi, Uber, Lyft
Financial services and payment methods	Alipay (co-owned by Alibaba), Cielo, Mastercard, MercadoPago (owned by Mercado Livre), PayPal, Rede, Visa, WeChat Pay (owned by Tencent)
Social network	Facebook, Instagram, LinkedIn, MySpace, Telegram, TikTok, WhatsApp

Particularly, in relation to platforms that operate as marketplaces, it is possible to identify three main models: B2B (business-to-business), B2C (business-to-consumer) and C2C (consumer-to-consumer). These models differ from each other in their scope, marketing strategy, users' profile, pricing methods and payment methods for the services provided.

The B2B model enables transactions between companies. The goods and services traded through this model are intended for business consumption, resale or the transformation of a good into another (e.g., online markets for the acquisition of inputs and equipment). The B2C model, in turn, deals with direct sales to the final consumer. The C2C model creates marketplaces to facilitate the negotiation between consumers, in which the website serves as an intermediary to the transaction (this can also take place in the B2B and B2C models if the company does not offer their own products and/or services in the platform).

B) MAIN ECONOMIC ASPECTS OF DIGITAL PLATFORMS

Among the economic features of digital platforms, **economies of scale** and scope, network externalities and intensive use of data stands out.

On the supply side, by keeping the transaction costs low, it became possible for individual suppliers to enter into markets usually dominated by companies that required economies of scale to compete. As to the demand side, digital platforms introduced new behaviors and boosted the trade of goods and services between peers. Gains of scale are traditionally defined as those that occur when the increase in the productive capacity of a given economic agent also generates an increase in the production volume, however without an increase in the costs of production in the same proportion.

The existence of considerable returns of scale in digital platforms is justified by the nature of its structure – that, regardless of the number of users in each end, is inclined to be the same, resulting in a proportionately low or next to zero marginal cost for each additional user.

Economies of scope, by its turn, occur when the joint production of two or more products leads to a reduction in the average cost of the products. As a rule, this happens because the goods in question are produced using the same inputs, through similar productive processes, demand labor force with similar qualification for its production, among other factors.

In digital platforms, this type of economy derives mainly from the high data processing capacity and, more specifically, from the capacity to offer different products through the same data base. As an example, a platform with an e-mail service can collect certain information that allows it to provide a more accurate service of restaurant recommendations.

The platform model also manages to generate **network externalities,** since, in several situations, the greater the number of users, the higher the benefits derived from its use. Platforms with two or multiples sides can benefit from network externalities – both direct and indirect.

Direct externalities occur, for example, when the benefits enjoyed by a user increase as the number of users which interacts grows (social networks are, currently, the main example of this effect, a position that was previously owned by telephones and e-mails).

As to the indirect externalities, they occur when the benefits generated to a group of users increase as the number of users from another group linked to the platform grows. For example, an urban mobility platform will be more useful to drivers, if a high number of passengers also uses the platforms (and vice versa). In this regard, to a certain degree, drivers also benefit from the entry of new drivers in the platform, as a broad range of driver's supply will attract more users.

It is noteworthy that none of these characteristics is new in the economic literature or exclusive to markets related to digital platforms. However, the simultaneity of these three main factors (remarkable returns of scale, strong economies of scope and network externalities) and their accentuated level in the case of digital platforms is somehow unprecedented, and makes these markets lean to the so-called ***tipping.*** Tipping constitutes a scenario in which an agent retains a given critical mass of users adherent to its product so as to hold the largest share of the market – a phenomenon that will be further detailed in the next section.

Network externalities also cause two or multiple-sided platforms to follow specific pricing rules, since the determination of the price on each side depends on the benefit generated for each type of user. In some cases, the externalities perceived by the different sides are similar, but if the benefits perceived by one of the groups is higher, this group will likely pay a higher price than the other sides, leading to a cross-subsidy between the different sides.

Advertising selling platforms, for example, generate a negative externality to the user (who would prefer to access the platform without having to go through the ads). In these cases, the price paid by advertisers is often used to subsidize the production of content to attract new users. With this in mind, one of the main functions of the platform is to define the level and distribution of the price among the different groups of users, in order to attract the greatest possible number of users on board the platform.

The ability to bring two or more types of users together also allows a platform to collect a **significant amount of data.** Thus, it is possible to easily store, and process information provided by the user (e.g., customer registration data) or generated in the process of using the platform – the so-called metadata (e.g., use of search terms for targeting advertisements; routs used during transportation). The collection and transfer of data can be interpreted as a form of "payment" for the use of the platform.

With the development of the Internet of Things (IoT), digital platforms managed to have even more data available for processing and analysis. This growing accumulation of data can be beneficial to the platform. The more data about the service provided and its target audience, the greater the platform's ability, in theory, to make correct predictions to support qualitative improvements, allowing it to attract more users and, as a result, more data to improve its own services, creating feedback loop.

Among the methods of improving the quality of service used by platforms are the improvement of algorithms and systems that, with more data, can be programmed to better predict users' reactions (e.g., use of algorithms to offer more accurate content, targeted advertisements or dynamic pricing). With the use of artificial intelligence technologies, based on previously collected data, the improvement process itself can be automated to allow the platform to provide even more precise and customized services.

4. COMPETITION RELATED ISSUES TO DIGITAL PLATFORMS

Based on the general characteristics and economic aspects of digital platforms that have been presented, we move on to evaluate the functioning of the markets in which the platforms operate.

One should note that an antitrust analysis of platform-based markets is not new or unique to the current digital economy. Its main features have been object of attention for a long time. There are several precedents covering issues related to platform-based markets in Brazil and abroad. They involve, for example, media markets, payment methods, video game platforms, newspapers, passenger transportation, shopping malls, supermarkets and others.**[8]**

[8] See for example the following merger review cases decided by CADE: Merger Review nº 08700.006345/2018-29 (Applicants: Itaú Unibanco S.A. and Ticket Serviços S.A., approved without conditions on February 08, 2019; Merger Review nº 08700.009732/2014-93 (Applicants: Telefônica Brasil S.A. and GVT Participações S.A., approved without conditions on February 15, 2015; Merger Review nº 08700.005689/2016-59 (Applicants: Warner Bros. Home Entertainment Inc. and Sony DADC Brasil Indústria Comércio e Distribuição Vídeo-fonográfica Ltda., approved without conditions on September 15, 2016); Merger Review nº 08700.006414/2016-32 (Requerentes: Infopar Participações S.A. and Folha da Manhã S.A., approved without conditions on September 28, 2016); Merger Review nº 08700.002970/2018-00 (Applicants: Bayerische Motoren Werke Aktiengesellschaft and Daimler AG, approved without conditions on May 18, 2018).

Nevertheless, it can be said that digital platforms based on the increased use of the internet and new technologies have radically changed the economy in recent years. They brought a range of efficiencies and posed new challenges for antitrust, especially in discussions related to barriers to entry and the identification of dominant position for the purposes of defining relevant market. A competition-driven analysis should be placed under that perspective.

a) EFFICIENCIES

A first aspect in connection to efficiencies refers to market formation, transformation and expansion. The combination of Internet and computer capacity, dissemination and mobilization, combined with big data tools, network processing and cloud-based systems, has created the opportunity for new markets and business models to emerge that challenge more traditional forms of economic organization and production, reshaping the conditions of rivalry and competition.

As examples, one could mention the emergence of ride sharing and passenger transportation platforms, lodging and accommodation, search tools, as well as innovations in traditional markets, such as in media and entertainment, communication, commerce, financial and credit organization, among countless others. In all those cases, competitive dynamics has been significantly shifted with the entry of new economic agents. New agents started to offer services in a distinctive fashion, expanded supply and competition and, to a larger extent, changed consumer behaviour.

There is another aspect to be highlighted. It concerns the interplay between new markets´ patterns and increasing transparency (for consumers and providers) regarding several variables within the scope of commercial transactions (such as price, quality, history of performance etc.). They likely reduce informational asymmetries and, consequently, reduce transaction costs.

Likewise, there is another increasingly distinguished feature which already caught the attention of Competition authorities and is often highlight, which is the ability of some platforms to customize and discriminate based on the data they collect. Data collection enables the creation of consumer profiles, allowing platforms to know and map consumers' practices, preferences, and even how much consumers would be willing to pay for a certain product or service. Customization enables differentiated pricing, which can be efficient, as it allows the volume of consumption of certain goods and services to be increased according to the amount that each consumer would be willing to pay for them. Yet the adoption of customized pricing practices may also raise competitive concerns, particularly regarding potential discriminatory practices.

Digital platforms are also characterized by considerable dynamism, with constant incremental innovations, seeking to maintain and win consumer preference. As a good example, one could notice the constant number of updates and new features added to apps in short time periods.

Finally, business models based on digital platforms and data monetization can be progressively scalable, as they use the same technology for the provision of services across several regions and countries without relevant additional costs. This factor likely generates competitive pressures and effective entries into new markets, all of them increasing rivalry. Nevertheless, certain restrictions on these businesses' scalability are explained by local rules, uses and customs derived from markets in which digital platforms operate. As consequence, universal models could be hardly formulated for a competition analysis on that topic.

b) BARRIERS TO ENTRY

In traditional antitrust analysis, a relevant step in both merger review and anticompetitive practices assessments concern the definition of barriers to entry in the relevant market. In other words, antitrust analysis departs from the assessment of any variables in that market that would prevent or limit the entry of companies seeking to start operating in that market, the so-called 'entrants'.

Barriers to entry are of two main types: (i) regulatory (i.e., arising from laws or regulations); and (ii) economic (i.e., arising properly from the structure and organization of the market).

Although there is recently an increasing number of proposals to regulate digital platforms, such markets are equipped with less relevant regulatory barriers than other sectors of the economy.

As for economic barriers, one should consider, as outlined in the previous section, the tipping trend in digital platform markets, notably because of economies of scale and network externalities. In fact, there are numerous studies pointing to the existence of the "winner-takes-all" phenomenon in digital platform markets. According to that approach, after an initial period of fiercer competition among several platforms, one player becomes the "winner" of a given market. In turn, most users become fans of that service. In other words, the platform that manages to come out ahead and reach a critical audience guarantees a relevant competitive advantage. This may represent a significant barrier to entry for new players, who may not have prospects of reaching a minimum scale to become economically viable.

Thus, it is said that in many of these markets, competition does not occur "within" the market but "for" the market. In this regard, when a particular player reaches a considerable size, it typically takes advantage of economies of scale and scope, as well as networks effects, which can make it difficult for competitors and rival platforms to advance.

On the other hand, there are studies showing that the tipping effect may not be a barrier to entry, but a factor that promotes rivalry. This is because the market leader's position can be challenged not only by players in the same market, but also by companies in ancillary markets, with emphasis on the role of innovations In that sense, just as economies of scale and scope and network effects tend to favour the leader in maintaining its position, they can also be factors that will allow

competitors to emerge more quickly (from innovations in the service provided, for example) and come to challenge the market leader's position. Hence, the assessment of each market characteristics is of a paramount importance to identify how tipping effect affects the competitive dynamics.

Another aspect pointed out in several studies is that holding large databases can be considered a relevant competitive advantage for digital platforms. New entrants would not have the ability to compete on the same level as established players, because such players would have vast databases allowing both customization of services and constant improvement of their platforms. In contrast, it is understandable that such databases would not represent a barrier to entry per se, since data are not exclusive or rival assets, but can be obtained from various means and used simultaneously by various economic agents. Furthermore, the main value of the data would not reside in the database itself, but in how it is employed and how the data is processed.

C) DETECTING A DOMINANT POSITION

An accurate relevant market definition usually precedes the identification of a potential dominant position, assuming that a player's market share is traditionally used as proxy to such analysis. In digital markets, however, this analysis may be challenging, as elements other than relevant market definition and market shares can be more adequate for determining a dominant position, as further detailed below.

The relevant market, in its product and geographical dimensions, is usually seen as the proxy for the competition assessment of market power. By defining the relevant market, competition authorities limit the scope for the assessment of the competitive relations in a given market and, as such, are able to identify if and to which extent market power could be exercised by the players. Defining the relevant market is essential for antitrust analysis; however, in highly competitive and dynamic environments such as digital platform markets, it is highly challenging.

Traditionally, in order to define the relevant market, competition authorities employ the hypothetical monopolist test to properly determine the narrowest group of products and geographical dimension in which a hypothetical monopolist could impose a small but significant and non-transitory increase in price based on the consumer's perception regarding product substitutability amongst the good and services under analysis (the "SSNIP test").

Applying the SSNIP test to digital platforms, usually composed of two or more sides, is more complicated, as pricing in such markets can be quite different if compared to traditional segments – frequently including zero-price products and cross-subsidies among different users' groups. In addition, competition between digital platforms is not necessarily based on prices, as features such as quality and innovation are also competitive factors, making it more difficult to apply the SSNIP test.

As explored in the previous section, digital platforms are affected by important direct and indirect network externalities. In both cases, the prices applied to one side of the platform have a direct effect in the prices applied to the other side(s), and can often be asymmetric, considering that platforms can subsidize prices in one of the sides, resulting in prices below margin costs if the subsidized side is considered separately. Therefore, antitrust practitioners have acknowledged the need to set a limit of two or more different markets, related to each side of the platform, and that cannot be considered from an isolated perspective. The antitrust analysis of such markets must consider the feedback loop mechanism existing between the platform's sides.

Even though price is not the only factor considered by the competition authorities, it has certainly assumed a predominant role in the traditional antitrust analysis. In digital platforms markets, however, an assessment based only on prices may not be sufficient to capture all market nuances. As such, literature has been arguing that it is essential to take other parameters into account, such as quality and innovation.

Multiple suggestions have been made to improve the SSNIP test. Two of them stand out for proposing a shift in the "small but significant and non-transitory increase in price" to better assess a dominant position. The specialized literature proposes the use of references such as "small but significant and non-transitory decline in quality" or "small but significant and non-transitory increase in costs". These models are especially relevant in zero-price markets, which are increasingly common amongst digital platforms.

The first model sets quality as the assessment parameter given that it can be directly perceived by the consumers. However, the high level of subjectivity of this parameter hinders the application of this model, which can become restricted to industries that are able to quantify quality levels objectively. In any case, a qualitative approach to these markets cannot be ruled out in any scenario.

In turn, the second model assumes that, even if the service seems to be offered at zero price, consumers pay for them by other means. Usually, platforms monetize the attention (audience) and information of subsidized users by selling advertising spaces or data to companies at the other side of the platform. According to this model, competition authorities should examine how other variables (such as hypothetical increases in the duration or size of advertisements) could lead consumers to seek substitute goods and services.

It should also be noted that revenues can be a useful tool for verifying market power in the case of platforms that offer chargeable services, but it is not the most appropriate parameter for defining market shares in zero-price platforms. In this sense, according to the OECD, it is crucial to seek more suitable alternatives, such as the user base or share of interactions in the market. **[9]**

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[9] Organization for Economic Co-operation and Development (OECD). Big Data: Bringing Competition Policy to the Digital Era. Background note by the Secretariat. 2016. Available: https://bit.ly/33xGaEF

It is also important to be sensitive to the consumers' perception of product or service substitutability, to avoid incurring in excessively restricted delimitations of competitors in a determined market. In cases where platforms with different business models and/or offline services and goods providers exert competitive pressure in the relevant market under analysis, the competition authorities may consider them as substitutes.

In light of the challenging task of preventing unlawful practices that set barriers to entry and hinder rivalry in digital markets, whereas preserving market efficiencies, the antitrust assessment may need to consider multiple relevant markets for a single platform and shall consider each market's specificities when calculating a player's market share.

Digital platforms can have different entry conditions depending on their specific characteristics, including the relevance of data to their business models. Data can assume different forms and be used in multiple ways; as such, its competitive value depends on a variety of factors, such as generation, collection and acquisition, storage, processing and analysis and, finally, its use. The competitive advantage derives not only from the capacity to generate data, but mainly from the ability to process and use it. As such, data can allow economic agents to make better decisions and, in general, can have several pro-competitive effects. Processed data can, for example, increase efficiency, allow companies to customize and improve products and services and reduce information asymmetries.

As exposed in the previous section, economies of scope and scale are relevant features of data-intensive markets, as it enables the offering of goods or services to a larger number of users while reducing costs. Since platforms strongly depend on their users' base, new players can face difficulties entering or competing in the market if they are unable to reach the minimal scale, which would reinforce a leading platform's market power.

In addition, network effects are also increased: the larger a platform's user base, the greater the data collection and, therefore, the better the capacity to create solutions for the platforms' products (OECD, 2017). If, on one hand, the improvement of goods and services can be positive for the consumer, on the other, concentration of data by a dominant platform can represent a bottleneck for competitors, especially smaller new entrants. Competition authorities have been looking carefully at this aspect, which could result, for example, in market power leveraging in adjacent markets. **[10]**

However, even if network effects and economies of scale can represent entry barriers and reinforce incumbent companies' economic power in some contexts, they can also boost competitors and/or new entrants. Once an entrant or competitor is able to achieve its own positive network effects (due to quality or innovation in the product/service offered), it could quickly reach significant market shares.

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[10] European Commission. Competition Policy for the Digital Era. 2019. Available at: https://bit.ly/3fz47he

As previously mentioned, players compete "for" the market, i.e., to be the dominant platform, which, on many occasions, will dictate the rules to the other competitors. As a result, it is not enough for new entrants to simply offer a better service and/or lower price, as switching costs may lock the users in a dominant platform (lock-in effect), avoiding the possibility of migrating to competing platforms.

The possibility of switching platforms without significant costs to users and the possibility of multi-homing (the simultaneous use of multiple platforms) have been pointed out as potentially relevant factors to mitigate the leading platforms' market power. However, there are specificities of digital platforms that can limit such possibility, including certain market characteristics and/or strategies adopted by certain players. For instance: (i) the loss of data, history and/or reputation (feedbacks and evaluations) by the user in case of platform switching; (ii) exclusivity arrangements; (iii) technical barriers due to standards or technical/operational requirements, (iv) tie-in sale of services; and even (v) users' inertia.

On the other hand, technical interoperability, i.e., the possibility of two services or products becoming interconnected is a way to potentialize switching and multi-homing. Technical standardization facilitates the sharing and management of data (which can be taken by a user from one platform to another through portability), and the connection between different platforms, which, for instance, makes the offering of complementary goods and services easier.

5. COMPETITION LAW ENFORCEMENT IN DIGITAL PLATFORMS' MARKETS

A) ASSESSMENT OF ANTICOMPETITIVE CONDUCTS IN DIGITAL PLATFORMS' MARKETS

As mentioned before, the competitive dynamics of digital platform markets is marked by the presence of network effects, economies of scale and scope, and use of data. As a result, it is possible to detect a tendency of markets with one or a few players standing out – and such players could hold a dominant position in case of significant entry barriers and limited rivalry amongst them.

For this reason, if on one hand it is necessary to protect the conditions for competition for the market (i.e. adequate conditions of entry and rivalry), on the other hand, it is also necessary to ensure competition in the market in case of platforms with a dominant position (i.e., competition with smaller but efficient platforms; or even within a certain platform that operates as an ecosystem or to which complementary services and applications can be added).

In this regard, competition authorities may assess potential anticompetitive behavior by both (i) the platforms, as competitors for and in the market, and (ii) the companies using the platforms, as competitors in a market based on a given platform.

In Brazil, the LDC establishes that the abuse of a dominant position, among other practices, is an anticompetitive conduct and as such is prohibited under Brazilian law. This prohibition also applies to conducts in the digital platform

markets, encompassing both unilateral and collusive conducts. However, while cartels are usually considered by CADE as a per se illicit and are therefore prohibited regardless of its effects, cases involving unilateral conducts are, in general, evaluated under the rule of reason approach, by which the legality of a conduct depends on a concrete analysis of the restrictive effects on competition alongside possible efficiencies that derive from such conduct.

In view of such characteristics, competition authorities have looked more closely at commercial practices that may have anticompetitive effects in order to ensure adequate competitive conditions, so that competitors and new entrants are able to attract sufficient users and create their own positive network effects, effectively competing in the market.

A type of commercial practice that can lead to anticompetitive effects is self-preferencing behaviors by platforms, with the goal of boosting their own applications or products. The anticompetitive effects of this practice will depend on the platform's ability of actually or potentially excluding an efficient competitor. Such exclusionary effects may affect the dominant company's rivals (primary line discrimination) or the downstream customers (secondary line discrimination). This discrimination can occur through predatory pricing, refusal to deal, denial of access to essential infrastructure/facility, loyalty rebates, tying-in and other practices.

Another commercial practice with potential anticompetitive effects is the imposition of **restrictions on multihoming** – in other words, the creation of difficulties or the prohibition of simultaneous use of several platforms by users. This conduct may result from restrictions on data access or creation of technical incompatibility. The first one relates to the idea that data would represent an input for the business. In these circumstances, potential new competitors could ask incumbent operators to access the data they accumulated on their platforms to introduce competing services or complementary services. In general, dominant companies that tend to limit or prevent multihoming, interoperability and data portability have been looked at more carefully by the antitrust authorities. On the other hand, measures that foster these practices, which reduce users' switching costs, have already been adopted voluntarily in sectorial self-regulation arrangements and as remedies negotiated with competition agencies.**[11]**

Considering that some platforms act as **"regulators"** of the interactions between companies and/or final consumers, the antitrust authorities tend to understand that dominant platforms' operators have the responsibility to ensure a healthy competitive environment, by establishing reasonable and non-discriminatory terms of use.

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[11] The case Google Adwords is an example. The modification of API contractual clauses, which hampered the transfer of announcements to other platforms, was a relevant topic both to the FTC and the European Commission's analyses, and for the agreements executed between the parties and the competition authorities.

Therefore, in cases involving dominant digital platforms, authorities are likely to be attentive to conducts that may distort competition in the market. Among others, the following conducts can be considered as an abuse of dominant position: unjustified or unreasonable limitations for the admission of partners/users, discriminatory search criteria, unjustified discriminatory ranking or display of results, abusive terms of use and conditions, and most favored nation (MFN) clauses.

In this sense, competition authorities have been carefully assessing **MFN clauses** in the context of digital platforms, i.e. clauses that, for example, allow platforms to impose users the prohibition to offer their products or services at lower prices in other sale channels.**[12]** Thus, MFN clauses can raise platform's fees and retail prices, creating restrictions to entry or distorting the position of potential entrants that seek low cost business models, setting entry barriers for new digital platforms.

However, MFN clauses can also produce efficiencies under healthy market conditions and concrete circumstances. Particularly, digital platforms' MFN clauses are justified as a protection to investments carried out by the platforms, as they would prevent free riding practices. Given that the balance between damages and efficiencies may vary according to the specific market under analysis, the potential of MFN clauses to generate anticompetitive effects is an empirical issue, which should be subject to a careful case-by-case analysis.

Regarding the relations between users and platforms, **resale price maintenance (RPM) clauses and minimum advertised price (MAP) clauses** can have a significant impact over the competition "in" the market. Given that price transparency is significantly increased in the digital environment, manufacturers may have greater incentives to adopt such clauses with their resellers as enforcement would be easier. While the adoption of RPM clauses by dominant companies have been presumed to be illegal (subject to efficiencies defense) by CADE and many other authorities around the world, the use of the MAP clauses (which, in theory, would be less restrictive, as restrictions would only be applied to the advertised price and not on the effective selling price) are assessed based on the rule of reason approach, i.e., balancing the restrictions imposed and the efficiencies created by its adoption (mainly the protection of brands). Nevertheless, in online markets, it may be more challenging to distinguish RPM from MAP clauses, considering the e-commerce platforms' nature, which are used both for advertising and for the effective sale of products and services. Thus, an analysis of the singularities of each specific case is also necessary.

Lastly, one of the main points of the debate is the possibility of **collusion** in the context of the sale of goods and services through digital platforms

[12] In Brazil, it is worth mentioning the investigation launched by CADE involving Booking.com, Decolar.com and Expedia's use of MFN clauses in agreements with hotel chains. The investigation resulted in the celebration of agreements between CADE and the companies to cease the conduct. More information is available at: https://bit.ly/3fLkfMS.

including the possibility of using artificial intelligence for pricing determination and for exchanging competitively sensitive information. This type of conduct is more easily adopted by companies, which can be explained by the complete transformation of several sectors due to technology: marketplaces, intensive use of big data and algorithms.

Although similar discussions about collusion already take place, artificial intelligence brings to the debate the possibility of tacit collusion with less or no human intervention, since, at least in theory, it opens space for the algorithms used by different companies to eventually converge into a supra-competitive price equilibrium (based on the detection of more sensitive variations in prices and coincident market evaluations, for example).

Algorithms can consider factors such as the popularity of items, prices charged by competitors and consumer preferences. The growing use of machine learning should be added to this scenario, as well as predictive artificial intelligence technologies that "learn" from the interaction of data and experiences and are able to find the best ways of pricing given the market conditions.

There are several efficiencies associated to the use of these technologies, especially related to the transparency they provide. On the supply side, this transparency enables better allocation of resources, including the reduction of production costs, and dynamic pricing techniques.

On the demand side, transparency has the potential to help consumers make better and more informed decisions through the reduction of search and transaction costs, which result in the increase of consumer welfare. Such features explain, for instance, the intensification of the use of price comparison services.

On the other hand, a broader adoption of such technologies also rises concerns from an antitrust standpoint. The algorithms could facilitate collusion in several ways, among them: (i) the possibility to monitor competitors' performance, (ii) the development of parallelism algorithms, which base the pricing policies in the continuous changes in demand and supply and can operate independently, (iii) the signaling, through price increases, which can generate a similar reaction from competitors, (iv) the use of machine learning, which could enable the practice of supra-competitive prices.

Simultaneously, the debate on how the authority should analyze the **exchange of information between competitors** grows. In a global scenario of data ubiquity, information is more easily available and the so-called intelligence industry is strengthened. This brings to light the debate on new forms of exchange of competitively sensitive information that could be considered anticompetitive. Thus, in the evaluation of the conduct, the authorities consider elements such as the type and volume of information exchanged, its temporal coverage and granularity, as well as the structural characteristics of the relevant markets involved.

B) MERGER REVIEW INVOLVING START-UPS

In general, mergers involving digital start-ups are rarely reviewed by competition authorities, as they are not commonly caught by notification thresholds, generally associated with the revenues registered by the parties/economic groups involved. Nevertheless, transactions involving start-ups have been attracting more attention due to the potential impact over the markets associated to them. Competition authorities from different jurisdictions have highlighted the innovative character of such companies and the impacts that the acquisition by incumbent companies can potentially have in the market.

Given that digital platform markets are characterized by intense competition based on innovation, start-ups have gained special relevance because of their innovative capacity and, therefore, the possibility of changing the competitive dynamic of markets in which they are active. Thus, although it is recognized that many of the transactions involving start-ups are the legitimate result of due competitive process and do not represent, at least beforehand, specific risks to the competition environment, antitrust authorities have shown concerns with a specific type of transaction: the so-called "killer acquisitions", a term that has been used to describe transactions between big techs and start-ups.

In these transactions, the competition authorities' main concern is that the acquisition of a competing start-up with high innovative potential by an incumbent may constitute a mechanism for maintaining the incumbent's market position, through the premature withdrawal from the market of a player that could effectively compete with the incumbents and/or whose technology, service or product could change the competitive dynamics of the market.

However, there are some factors that currently limit the identification and analysis of such cases by antitrust authorities.

The first factor, as mentioned above, are the thresholds for mandatory notification based on the parties or the economic groups' revenues, which are usually much higher than the revenues registered by start-up companies. From this perspective, several digital start-ups adopt business models focused on product and network development in the first moment instead of more traditional models that aim at short-term profits, meaning that, at least for certain time, their competitive potential will not be reflected in their revenues. Based on such limitation, competition authorities of some jurisdictions, such as Germany, Austria and the United Kingdom, are discussing the topic and revisiting their notification thresholds.

A second factor is the relevant market definition. In this type of transaction, the buyer and the target company are usually not seen as direct competitors. In other words, start-ups are often active in specific niches or in fringe markets, making it difficult to find a clear overlap between the activities of the incumbent (buyer) and the target company at the time of

the transaction review. However, if the start-up represents or has the potential to represent a competitive threat beyond its original market, imposing competitive pressure over the technological/consumer space in which the incumbent operates, the acquisition may, considering the results of the conglomerate effects, reinforce the buyer's potential dominant position, which can escape antitrust review depending on the relevant market definition (e.g., if the definition is too narrow).

Important to note, however, that the acquisition of tech companies with exclusionary objectives should not be seen as the rule, since the technology companies' intention to integrate complementary innovative services to their platforms is reasonable and legitimate. As so, a very cautious approach must be adopted by antitrust authorities when assessing mergers in digital markets.

6. CONCLUSION

Given the growing relevance of digital platforms for the functioning of numerous economic activities and, therefore, for the business environment, this Working Paper sought to present, in a clear, objective and technical manner, the main factors that can influence the application of competition law in relation to business conduct in the digital economy, in order to guide economic agents, in particular, as to the possible competitive existing risks – whether they are platform users or administrators.

This document is not intended to have a propositional nature to the regulators, but rather, the intention is to present general guidelines for economic agents to reflect and guide their activities with caution in digital markets, obviously without prejudice to encourage its reading by the regulators and researchers in general.

Although succinctly, and under the character of a work in progress, this Working Paper was intended to present an important systematization of recent government initiatives involving the subject; the economic characteristics of digital platforms; the influence of these platforms on the competitive configuration of digital markets; some of the possible practices that are already being investigated by antitrust authorities; as well as challenges in the application of concepts and tests traditionally used in the practice of competition law to the specific phenomena of this new and challenging economic context.

In due course, based on the development of the subjects outlined herein, a new Working Paper is expected to be prepared to monitor and capture the thematic evolution.

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