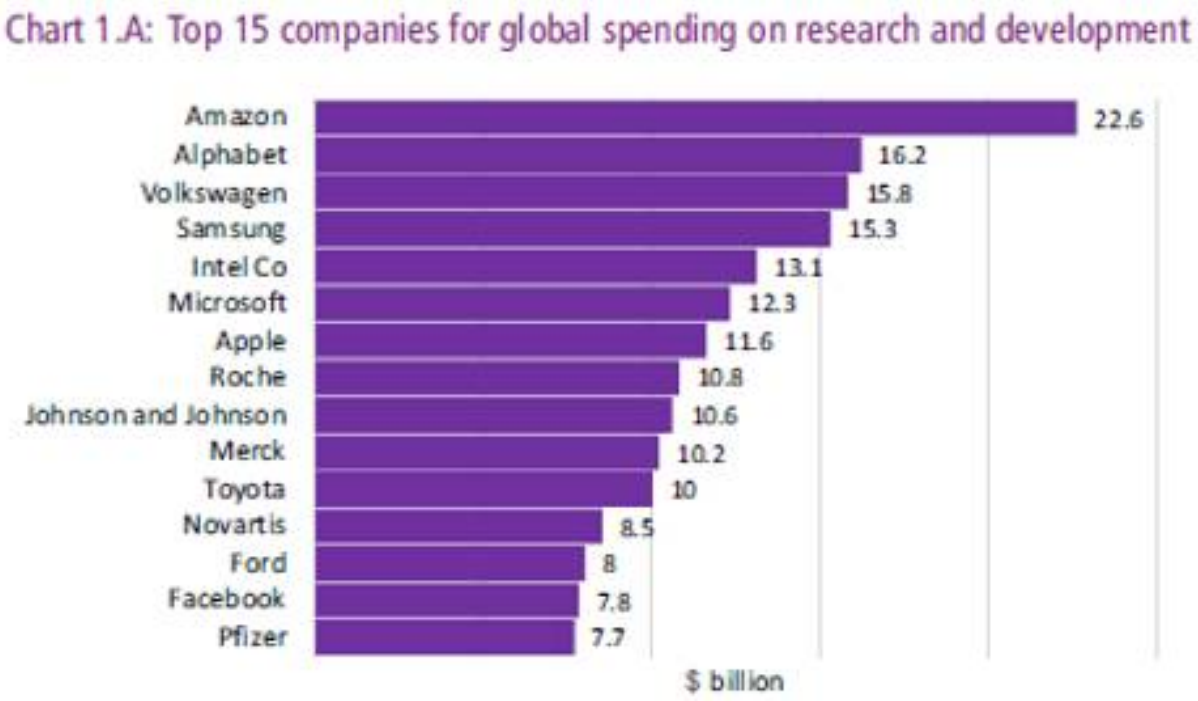
EXPERIENCES FROM THE ENERGY AND TELECOMMUNICATIONS SECTORS FOR THE DEVELOPMENT OF A REGULATORY FRAMEWORK IN THE DIGITAL MARKET

1. Introduction

Companies that implement digital tools have proven to generate innovations, efficiencies and expansion at an unprecedented velocity. The advances of society move at the pace that digital technology determines, as well as its consequences. Due to companies' conduct that interacts in the technology sector, governments and society closely monitor the effects generated and the potential controls that should be imposed on these companies. For digital platforms, investment in research and development represents one of the most significant elements within the business budget since this activity generates innovative and efficient services for companies' incomes in this sector. In particular, the Furman Report (2019, p.20) included the figures published by PwC in 2018 (Global Innovation 1000 Study), where it was evidenced that companies in the digital sector are in the first places of investment in research and development.



(Furman Report 2019, p.20)

According to the Furman Report (2019), high levels of investment will deliver significant benefits for consumers and society in general. Additionally, these figures show that for

members of the digital sector, continuing to present innovations is not only a matter of recognition or success but the core of their business activity. Digital platforms have generated efficiencies between different market niches related vertically, horizontally, or within a conglomerate relationship. This situation has allowed these companies to be part of consumers' lives through various products and perspectives.

The impact that digital platforms have is massive, and it has been able to reach almost any aspect of an individual's life, exerting a significant level of influence on their lives. Governments worldwide have seen with concern how prominent agents in the digital sector impose a great capacity to influence society, causing consequences at the level of human rights, consumer protection, public opinion, news distribution, anticompetitive effects, among others. This document intends to identify the anticompetitive impact that digital platforms generate in their markets and the approach to which regulation could remedy these effects.

Therefore, it will be analysed how past experiences of the energy and telecommunications sectors in Europe and the United States ("U.S.") have faced anticompetitive effects. The energy market and especially the telecommunications sector have common aspects with the digital market, so it will be ideal to investigate which regulatory measures could prevent the harmful effects in the most innovative and *avant-garde* market in commerce. Notwithstanding, it must be clear that any limitation can affect the efficiencies and innovation, altering the income and the core of the businesses that so many benefits they bring to society.

In this sense, this document will be developed as follows: In the first part, the main characteristics of digital markets will be identified, the anticompetitive effects that are currently being generated and the necessity to include an *ex-ante* regulation on these markets. Second, the main stages of liberalisation of the energy and telecommunications markets in Europe and the U.S. will be presented, with the anticompetitive problems identified and the learned lessons. In the third part, the proposal of the regulatory model that should be applied in digital markets to mitigate the current anticompetitive effects will be introduced. Then, the flaws and limitations that could be generated in the proposed model will be discussed. Finally, the conclusions that the implementation of the model would generate, its foundations and constraints, will be presented.

2. Digital markets and the necessity to regulate

Digital platforms are companies that have managed to generate high degrees of influence over the public, and that in particular, have characteristics that differentiate them from other innovative companies. Several authors have attempted the definition of platforms, and some consider that defining this type of companies is challenging (Khan,2020). However, there is consensus on the main characteristics of the platforms: first, it can be considered that they have an intermediary role, where they can control a network, a facility or an essential input (Khan, 2020). In general, platforms tend to be prone to winner-take-all economics due to characteristics such as network effects, switching costs, self-reinforcing advantages of data, economies of scale and scope (U.S. Subcommittee on Antitrust,2020). The latter leads digital markets to "tip" "*(...) in favour of one or two large companies, shifting the "the competitive process from competition in the market to competition for the market.""* (U.S. Subcommittee on Antitrust 2020, p.37). Another essential characteristic is the possibility that the price of their services is equal to zero, which reinforces the difficulty of switching between providers since the price will not be one of the motivations to do so (CMA,2020).

Not all digital platforms might raise competition concerns. Still, precisely those that have a "Strategic Market Status" ("SMS")[1], and refers to the possibility of having obtained sufficient *"(…) scale to put them in a position which would allow them to behaviour in a anticompetitive way or in which they could undertake behaviour that would result in sub-optimal outcomes"* (Dasgupta & Williams 2020, p.8), must be specially analysed. The SMS does share characteristics with the concept of dominance position of competition law and the "tip" effect in the digital markets. Moreover, direct network effects refer to the fact that the value of the network increases if the number of users increases since users will interact with a more significant number of parties (Furman Report, 2019). For its part, indirect network effects have the same essence as its counterpart, only that it refers to different types of networks that are not necessarily involved vertically or horizontally. Network effects are characteristics that are shared with the energy and telecommunications markets and that do not necessarily generate anticompetitive effects (Dasgupta & Williams,2020).

[1] Which has been introduced by different reports, including the CMA Report (2020). Online platforms and digital advertising. Market study final report.

Another main characteristic is the so-called two side platforms or gatekeepers, which is precisely the main characteristic mentioned by Khan (2020) regarding their role as an intermediary. Platforms structure access to digital markets and participate in them; therefore, obtaining an SMS status is not difficult, as the same platform designs the market. Finally, it should be noted that the information processed by the platforms is one of their most essential inputs since they process a large amount of detailed and sophisticated information that allows them to provide a better quality of service and generate new products (Furman Report,2019). Data is more relevant in digital markets than in any other since information can be necessary for each service stage. In addition, data can feed a specific company and generate efficiencies in other firms owned by the same agent (European Commission,2019).

As mentioned above, a particular platform's SMS status might help to generate anticompetitive effects in the market. The generation of anticompetitive effects by platforms is one of the most discussed topics of the last decade. We have observed how competition authorities have investigated and sanctioned market agents that had not been investigated previously and imposed stratospheric fines and innovative remedies. Competition authorities and governments have shown concern regarding the following behaviours: self-preferencing, margin squeeze, refusal to deal, bundling or tying, among others. Khan (2020) classifies these behaviours into two types: discrimination and appropriation; the author states that large platforms use strategic information from their competitors/clients to compete with them and exercise discriminatory activities against them in their role as providers (leveraging adjacent markets).

It is a fact that large platforms can influence their competitors' actions, and in turn, generate anticompetitive effects, which can even affect efficiency and innovation. The latter cause adverse effects on its competitors, consumers and the market itself. Lanzieri and Morita (2021), who consolidated twenty-two reports related to competition in digital markets, exposed the anticompetitive effects in two groups: price and non-price effects. Those effects include consequences in (i) quality and innovation; (ii) privacy, personalisation and addiction; (iii) price discrimination; (iv) refusals to deal, essential facilities and interoperability (Lanzieri and Morita, 2021). Overall, the effects are the same, within a different type of classification. The prominent cases in which the authorities' concern about the platforms' actions has been observed refers to those

sanctioned mainly by the European Commission, such as Google Shopping (2017) and Google Android (2018).

However, and as Khan (2020) pointed out, the form in which platforms intend to reduce competition in the market is not an entirely new situation. The problem lies in the possibility that a firm control a critical network, which is a situation known to the competition authorities. Several authors have stated that tools provided by competition law are not enough to prevent and mitigate the anticompetitive effects generated by digital platforms (Ibañez,2021). The latter does not precisely involve including new tools within the competition law but instead establishing a specific regulation. This necessity continues to be an open discussion; as Pablo Ibañez (2020) mentioned, it must be analysed whether the insufficiency of the remedies imposed by the competition law is the only reason why *ex-ante* regulation is advocated or if other reasons give force to this argument. However, further discussions demand an *ex-ante* regulatory framework since it is evident that the current regulation has not responded to the specific requests; moreover, the actions necessary to be imposed are more likely to shape the market than to correct it.

We have witnessed the flaws of the investigations carried out by the competition authorities. There is a great presence of information asymmetries, an absence of coherence and forcefulness in substantive analyses, and the imposition of remedies that have not proven to be adequate. The problems to be regulated are related to the ability of the platforms to extend their dominance to other markets, conflicts of interest, promoting innovation and diversity of options for consumers, and ensuring the stability of markets. Likewise, the possible regulation tools that have been proposed are related to the structural/functional separation of platforms, controls over the processed information, interoperability, obligations to provide access, among others. (CMA,2020). Various of these objectives are also common to the regulatory regimes of energy and telecommunications in Europe and the U.S.; therefore, their milestones and experiences will be presented below, which, in due course, could be used in the digital sector.

3. Regulatory liberalisation processes in network industries

3.1. Telecommunications

3.1.1. Europe

The characteristics of the telecommunications market are more similar to the digital market than any other regulated market. The pace of technological advances, the debates on anticompetitive behaviour, the supply agents' profile, and the economies of scale and scope are some of the characteristics they have in common. Notwithstanding, it is clear that the agents of the telecommunications sector are not two-sided platforms. For its part, the telecommunications sector in Europe has witnessed regulations that have tried to mitigate the anticompetitive effects generated in the market and regulations that have shaped the design of the market itself. Since 1980, the European regulatory framework has focused on shaping markets (access regulation and even structural separation). The latter has aimed to promote the entry of competitors (Dasgupta & Williams,2020), which are expected to one day they may compete in a facilities-based competition (OECD, 2016). This type of regulation aims to promote competition in the downstream market to generate upstream competition. In this vein, the regulations that have been established in this market can provide useful input in the regulation process of the digital market, from the analysis of the effectiveness of regulatory interventions *vis a vis* innovation and the long-run competition of the market. (Dasgupta & Williams,2020).

The first stage of liberalisation of this market occurred with the publication of the Green Paper (1987), through which the liberalisation of additional services and telephone terminals[2] was ordered (Directive 88/301). The Green Paper kept exclusive rights over the telecommunications networks and voice services to national companies (Larouche, 2000). The liberalisation process was gradual, and the liberalisation of alternative infrastructure was allowed. Finally, in 1998 the sector was fully liberalised[3] (Walden, 2018). From this moment on, concepts such as interconnection, access and public Service were already implemented.

The current regime, the EU Regulatory Framework for electronic communications[4], is the current regulatory model most similar to the one that must be implemented in the digital market. This model aims to achieve effective competition within the market,

[2] Liberalisation defended in the Terminal Telecoms Decision (Commission of the European Communities, 1991).
[3] The Directives issued were: 88/301, 90/387, 90/388,91/263, 95/51, 96/19, 97/51 and 98/10.
[4] Issued in 2002 and amended in 2009 and 2018.

given that according to the regulatory framework, this is the most efficient regulation that can be established (Ibañez,2021); and the procedures and tools expressed in this regulation allow to correct the possible conditions that could generate anticompetitive effects in the market. Once suitable conditions are obtained on a relevant market to create effective competition, regulation becomes unnecessary and disappears. Likewise, the regulation establishes that it will only be used when necessary and in a proportional manner. In this sense, the regulation will be implemented if the "three-criteria test" (Article 67(1)) is met, which requires (i) the presence of significant entry barriers, (ii) that the market to regulate does count with the condition to undertake effective competition, and (iii) that remedies can only be imposed when competition law has not been sufficient to mitigate market failure (Ibañez,2021) adequately.

As mentioned, the core of this regulation is to allow the access and interoperability of the different market players, particularly to the available infrastructure, in order to guarantee this universal service. Three other fundamental elements of this regulation are technology neutrality, wherein the regulator will not demand compliance with a particular technical standard; the capacity of the regulatory framework to adapt to future technologies; and the use of the principles of competition law as a guide for the regulation. The remedies[5] that can be imposed through this regulation are the following: transparency, non-discrimination, accounting separation, access to civil engineering, network access, price control, and functional separation.

Even though regulation in Europe has undergone various modifications, it can be stated that the essence of the initial objective of liberalisation of the industry remains intact (Ibañez, 2021), and therefore, it has proven to be receptive to technological modifications. In general, European regulation has sought the following objectives: (i) include competition in the market, (ii) avoid extension of the dominant position and therefore its excessive concentration of power, (iii) preserve the stability of the system and provision of universal service, and (iv) guarantee new market entrants access and interoperability to existing infrastructures. Notwithstanding, if the regulator's objective is to promote an infrastructure-based competition, the access obligations must be reassessed from this point of view and technological advances.

3.1.2. The United States

[5] Electronic Communications Code.

The Communications Act of 1934 was the seminal instrument of this sector regulation in the U.S., in which the telecommunications service was categorised as universal. During most of the 20th century, the telecommunications service was provided through a monopoly, a situation that has made it possible to argue that a single *"(…) monopoly, protected from competition, would deliver higher quality, reliability and coverage*" (Dasgupta & Williams 2020, p.21)[6]. In 1968, with the Carterfone decision, a fee imposed by AT&T, which practically prohibited the connection of any other equipment to devices marketed by AT&T, was considered unjustified (Nuechterlein & Weiser,2013). Consequently, the tariff was prohibited, and the first step was taken to liberalise that market (Robinson,1988). Similarly, in 1959, the possibility of providing microwave transmission infrastructure was opened, but it was only until 1969 when authorisation was granted to a provider to offer private line services.

In 1974, the government sued AT&T, alleging the abuse of its dominant position in three markets: local exchange, long-distance and equipment (triple-bottleneck theory). In the triple-bottleneck, there are two competitive activities (long-distance and equipment), and the local exchange was a monopoly managed solely by AT&T. The Government argued that AT&T did not grant local interconnection services, but the parties settled an agreement (Robinson,1988). AT&T would divest the ownership and control over the seven Bell Operating Companies, which would not combine their lines of business and would grant access non-discriminatory to any company (Khan,2020). In 1996 the Telecommunications Act was issued, through which it was intended to identify and isolate bottleneck assets (avoiding unbundling) and use competition law to "discipline" other markets (Dasgupta & Williams,2020). Starting in the 2000s, the U.S. "*has relied primarily on inter-modal competition*" (Dasgupta & Williams 2020, p.22) to guaranteed competition in the telecom markets.

The structural separation of AT&T, despite been voluntary, responded to evident competition concerns, not only in competitive markets (long-distance and terminals) but also in the local loop monopoly. In this vein, the separation responded to the necessity to avoid an extension of AT&T's dominant position to other markets, promote

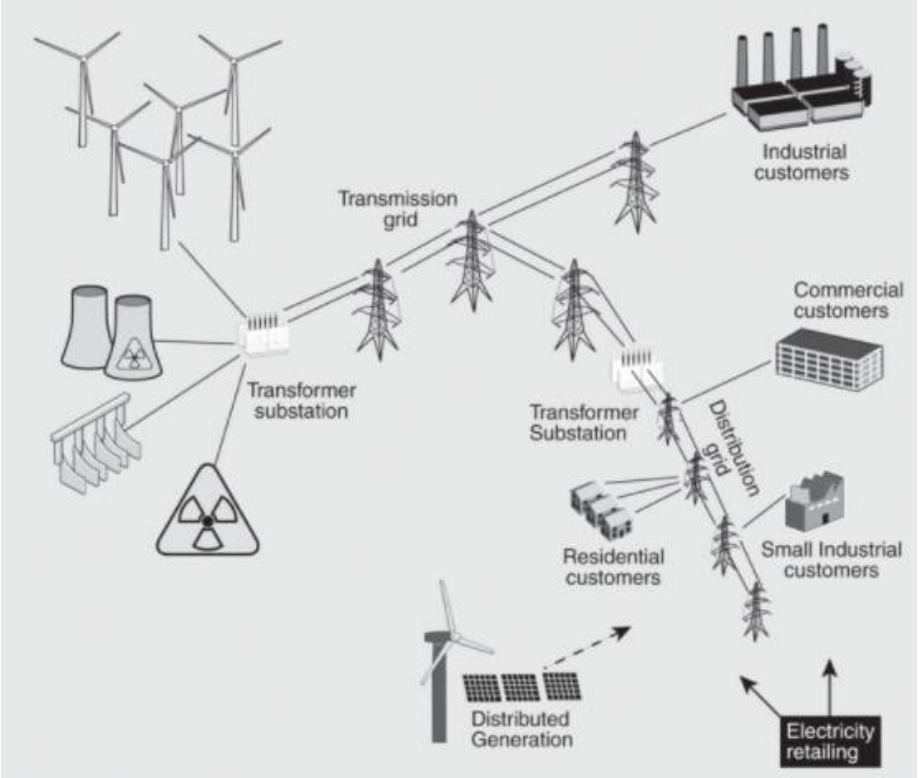
[6] As Robinson (1988, p.518) mentioned: *"AT&T's monopoly seemed not only natural5 but relatively benign. Notwithstanding Joan Rivers' carping MCI advertisements, the system pioneered and developed by AT&T was justly acclaimed the world's finest. Telephone rates were comfortably affordable; furthermore, in the heyday of the telephone monopoly the rate system was generally perceived as fair."*

a diversity of options for the consumer, avoid excessive concentration of power and provide a universal service. However, some authors (Dasgupta & Williams 2020, p.24) have stated that the separation of AT&T *"(…) had no lasting impact on the industry, that it may have resulted in creating a structure that complicated the subsequent broader introduction of competition in all telecommunications market, and that successful outcomes were achieved with far more minimalistic measures in other countries".* Similarly, the authors above (2020) have recognised that the separation from AT&T was quite costly, lasted at least two years and provided limited benefits to competition, market players, innovation, among other elements. Likewise, Dasgupta & Williams (2020) state that the long distance and the local hoop were integrated again in the 2000s, indicating that economies of integration are essential.

3.2. Energy sector

3.2.1. Europe

As in the telecommunications sector, the energy market is a network industry; however, other characteristics allow them to be widely differentiated. The main differences lie in environmental concerns, security supply (inelastic product), determination of prices, electricity storage (Decker, 2014), and innovation rate, which involve different regulatory approaches. In the case of energy, it may be observed that the value chain includes four activities: generation, transmission, distribution and retail services (Decker, 2014). Two of these activities (transmission and distribution) cannot involve different actors, so it will be a monopoly that provides these services. Historically, the provision of energy has been the responsibility of vertically integrated companies (Kettlewell, 2020). In this vein, European regulation has imposed a ban on unbundling these two activities to preserve competition in the other two activities.



(Decker,2014:223)

Structural separation has been a standard measure imposed in utility markets with essential facilities, such as energy. For Pike (2020), the application of this regulatory tool eliminates the incentive that companies have to expand their participation in adjacent markets. However, for the OECD (2016), separation (of any nature) must be implemented through different tools and are commonly implemented when sectors are undergoing significant changes (for instance, privatisation or liberalisation), such as happened in the electricity sector in Europe.

The anticompetitive effects derived from companies vertically integrated by this sector were analysed in the first (1996) and second (2003) Directives. In the first Directive, unbundling obligations were limited to accounting and management unbundling; the responsibilities were not explicitly established, only applicable to the transmission activity (Kettlewell,2020). This first regulation project suffered many shortcomings, which were evident and corrected with the Second Energy Package (2003). In this Second Package, more significant unbundling measures were introduced, including legal, functional and accounting separations, which sought the total liberalisation of the sector. According to Kettlewell (2020), the structural separation measures were not included in this package since all members had not accepted them. They had also been considered inadequate, drastic, and without a context of subsidiarity and

proportionality. The Third Energy Pack was adopted in 2009 and introduced ownership unbundling, seeking to avoid conflicts of interest and discrimination towards any market agent (Kettlewell, 2020).

The current regulatory system in Europe consists of three instruments: Directive 2019/944, which sets the main rules related to activities in the value chain; Directive 2019/943, which establishes the technical conditions of the services; and Directive 2019/942, which sets the regulator obligations. Directive 2019/944 (previously Directive 2009/72) did not establish the structural separation of bottlenecks; instead, regarding the transmission activity, it created two options: (i) as per article 43(1), a transmission operator cannot control any generation or supply activity; or (ii) if the transmission company was vertically integrated before the publication of Directive 2009/72, article 43(1) will not apply, and an Independent System Operator will be designated with prior approval of the Commission[7]. Regarding the distribution activity, the Directive required legal separation from the rest of the activities. As there are monopolies on transmission and distribution networks, the authority must establish access obligations (article 6 (1)), where the rates set by the regulator are applied under objective and non-discriminatory standards. Unlike the telecommunications service, the energy regulator cannot expect that competition will be based on the infrastructure of each agent.

3.2.2. The United States

The provision of energy service in the U.S. has been characterised by having private and public participants. In particular, municipal governments developed their infrastructure to guarantee the service's supply and avoid anticompetitive conducts (Carley, 2020). In 1920, the Federal Power Act was published, through which the regulatory authority (today the Federal Energy Regulation Commission) was established. In addition, federal control was found over distribution activity and transmission services throughout the State. Consequently, this instrument divided State and federal authority over the operations of the electricity sector. In 1935, The Public Utility Holding Company Act was issued, allowing the protection of the sector's finances by avoiding double expenses recovery by companies that participated in more than one State. The necessity to regulate and modify the monopoly in the market was

[7] Article 44.

observed in the 1970s, where inflation made evident the high value of service prices and the few incentives of providers to reduce them (Gulliver & Zillman,2006). As in Europe, transmission and distribution activities are managed as monopolies.

One of the first strategies to introduce competition within the sector was generated through the Public Utility Regulatory Policies Act of 1978, through which utilities were required to buy part of their energy supply from “qualifying facilities” under particular conditions (Gulliver & Zillman,2006). This situation allowed that in the generation activity competition flourished. Precisely this legal instrument was the origin of vertical disintegration and the regulation of rates. Through the Energy Policy Act of 1992 and Orders 888 and 889 (1996) issued by the regulatory authority, open access was extended to all power generators to transmission networks. If there is no transmission capacity, it would be necessary to expand this capacity[8]. After these regulatory strategies, the deregulation movement emerged, marked by the Energy Policy Act of 2005. It was established that the regulatory authority would be in charge of the obligations of access to transmission and distribution activities. However, it is clear that the activity of this sector differs from its European counterpart, insofar as it has federal and State regulation, and a large number of actors converge within the market (Carley,2020).

Despite the differences with its European counterpart, the U.S. electricity sector also recognises the existence of a monopoly on transmission and distribution activities, where, at the state level, there are access obligations. However, the current scenario offers agents greater freedoms and an almost non-existent level of regulation in many of the States. It could be established that the introduction of regulation was necessary to encourage competition. Once market conditions allow robust competition dynamics, regulation loses meaning and is needed to remove it.

3.3. Main contributions of the regimes

According to the above, regulatory regimes arise due to competition failures in the market and the necessity to guarantee universal services. It is also clear that the remedies applied to tend to be provided according to necessity (proportionality). The strongest structural separations were observed in telecommunications in the U.S., and

[8] A similar situation was discussed in the ENI Decision, Case COMP/39.315.

it has been stated that perhaps such drastic measures were not necessary to obtain the desired results, as has happened in Europe.

The telecommunications regulatory framework has been shown to include adequate elements for constant technological innovation, such as the implementation of regulation only in the relevant markets that is necessary and with tailored remedies. Likewise, the intention that the regulation should only be applied as long as it is required to do so and following the principles used by competition law becomes evident. However, it is observed that the telecommunications sector is not yet fully prepared to begin deregulation, even more when infrastructure access obligations are required. Still, it is expected that one-day competition will be based on infrastructure. Notwithstanding, the measures implemented have shown to generate higher levels of competition in the downstream market, so it is expected that soon, there will be better conditions to compete at the upstream level.

Regarding the energy sector, it is clear that there are activities that constitute monopolies and must be regulated. However, the U.S. example exposes evidence of a flourishing of competition in the activities that allow it and the continuous deregulation of the system once it is no longer necessary to have such obligations. Once the energy and telecommunications sectors are compared, it becomes clear that the bottlenecks in the telecommunications sector are not as fixed and immobile as those exposed in the energy sector. However, the above may be derived from the lower level of technological disruption in the energy market and the greater ease of defining the different activities in the market.

Based on the experiences included in this part, the next chapter will have the opportunity to project a regulation for the digital platform sector, particularly in Europe. In this sense, relevant decisions must be made, such as the level of intervention to be implemented and choosing between a service-based competition regime or an infrastructure-based regime. The latter, considering all the implications that each of these options entails.

4. Proposal of the regulatory model to be applied in digital markets

As mentioned above, digital markets generate anticompetitive effects that cannot be entirely mitigated by competition law. Thus, it is necessary to include regulatory

measures that allow the generation of competition conditions in these markets. As Ibañez (2020) mentioned, any regulatory proposal must be *"scrupulously crafted to ensure that the public interest is preserved."* Therefore, the proposition presented will include principles and how they will guarantee the proposal's objectives. In this vein, the regulatory measure should consider obtaining the substantive goals and the costs that the implementation of the regulation will entail, the effects on investment incentives in the market, and the costs of structural measures to be proposed (OECD, 2001).

For the specific case of the digital markets, authors such as Nicolas Petit (2020) consider that a utilities-based regulation for these markets is a "bad idea", given that non-price services would be compromised in their quality by attracting inefficient service providers. The regulation of utilities in these markets would incite the loss of incentives to innovate and frustrate the principle of competition on the merits. Notwithstanding, and given the continuous anticompetitive effects generated in these markets and the range of experiences collected from other markets, the possibility of analysing a particular market cannot be removed to determine which would be the best tool to allow the creation of competitive conditions in that market. In this vein, concerns regarding the type of competition to establish in the markets or the degree of intervention should be based on analysing the relevant market case by case.

As mentioned above, the tool implemented by the European telecommunications regulation to analyse the necessity for regulation on each relevant market, in particular, should be part of this proposal without a doubt. This exercise would allow the implementation of case-by-case rules and tailored measures on each of the markets. This element is also shared by Lina Khan (2020), even though her central thesis is to include structural separation tools as default measures. The second element borrowed from the European telecommunications regulatory framework will be implementing a threshold test to intervene. These requirements are established to avoid unnecessary regulations; to this extent, the first element to be analysed will be the existence of a bottleneck market or activity. Once a bottleneck and adjacent markets have been identified, possible non-transitory entry barriers should be identified, which might be related to network effects and unequal access to information (Khan, 2020). Third, a dominant position should be determined, an analysis that brings challenges in this type of market and that will be discussed later, but that in any case should include direct elements such as substitutability analysis and indirect ones such as profitability and market shares (OECD,2020). The last element of the test would be the certainty that

competition law rules will not be enough to remedy the anticompetitive conditions generated.

4.1. Principles of the model

According to the experiences analysed, two principles should be the main ones for this regulatory model: (i) follow the parameters and objectives of competition law and (ii) adaptation to new technologies. Regarding the first principle, it is evident that the telecommunications regulatory framework has implemented the experience and tools of competition law to achieve its objectives; as mentioned above, the best regulation would be the competition law. Despite being an obvious fact, this principle is mentioned since the Digital Markets Act (2020) proposal does not include monitoring the parameters of competition law. On the contrary, this regulation proposal aims to ensure that markets remain contestable and fair (Ibañez, 2021). These types of objectives, without a doubt, cannot be those pursued by any kind of economic market, much less one that is so disruptive, since this will not allow them to renounce at any moment to the regulatory measures imposed. Moreover, the relationship between regulation and competition law cannot be denied and must be pursued as a whole (Dunne,2015).

This degree of technological disruption requires that its regulation easily adapts to these changes. As in the telecommunications sector, the proposed regulation must integrate any innovation that occurs within its operation. This requirement necessarily implies that the regulator does not impose any type of technical requirement; in particular, it must also include the principle of technological neutrality. The last principles that should be implemented would be proportionality and necessity; the market should not be regulated without need. Only the measures strictly necessary to mitigate the anticompetitive effects generated will be implemented. In this author's opinion, extreme measures, such as the structural separation proposed by Lina Khan (2020), should not be implemented, just because they are tools that have been discontinued and would possibly generate behaviours that are much easier to control by the regulatory authorities, without having carried out a detailed analysis initially. The remedies should only be applied in a necessary scenario and consistently generate the least possible impact.

4.2. Relevant market definition and anticompetitive effects identification

As described, the regulatory model should be initially applied only to those relevant markets that have complied with each threshold test. However, before implementing the test, the authority must identify all the relevant market characteristics and then determine the anticompetitive effects. Defining a relevant market within the digital sector is challenging, as was the definition of digital platforms. However, it is public knowledge that the definition of the relevant market is a fundamental activity to establish any type of regulatory control. In this sense, the following elements must be identified within the market: bottleneck activity, adjacent markets/activities, market participants, market shares, levels of competition in the bottleneck and adjacent markets, inputs from other markets used in the relevant market.

The above elements will be difficult to analyse as digital markets include particular characteristics such as non-price dimensions of competition, where service providers provide services without consumers having to make a direct payment for the provision of services (OECD,2020). This situation will probably nullify the possibility of estimating a market share from the turnovers of market participants. In this vein, the economic tools that have been used for many decades to determine the participation of agents in the markets, such as the SSNIP (the small but significant non-transitory increase in price) test, must suddenly be adapted to obtain an approximation to the reality of digital markets. The OECD (2020) has stated that the SSNIP test will not generate meaningful results in zero price scenarios and that in any case, the test must be adapted to analyse the total cost of transactions. Second, the dynamics between the different markets in which service providers participate will make it challenging to identify a single market, a single bottleneck, or a single adjacent market (OECD,2020).

The task of defining the relevant market in the digital sector is such a challenging activity that it has even been proposed to eliminate the requirement to describe it and, instead, allow the market power to be inferred from the presence of behaviours that are not corrected by normal market conditions (OECD,2020). In the same vein, theories have been proposed about the definition of digital markets, where there has even been speculation about the possible appearance of new market organisation concepts, such as the *moligopoly*. This concept was proposed by Nicolas Petit (2020) and establishes the coexistence of a structural monopoly with a cognitive oligopoly, where different levels of competition are generated that have not been observed by competition authorities before.

Identifying bottlenecks or potential essential facilities will not involve the same effort as previously. In the analysed markets, energy and telecommunications, the essential facilities came from a past natural monopoly promoted by governments (Pike,2020) and that could tangibly be represented in an infrastructure. There is no tangible infrastructure in the digital sector that can be characterised as essential facility/bottleneck. Likewise, the essential interfaces have not been the product of promotion and State resources. For this reason, and due to the above, it is difficult to establish a definition between two activities in the digital sector. In the Microsoft case (2007), for instance, the Commission determined that the operating system and the media player were two different services, with two different types of demands; and that Microsoft tied up the sale of both. For its part, Microsoft argued that the media player was a fundamental element of the operating system and that, therefore, they were not two different activities or services. As a consequence, there was no anticompetitive behaviour. The latter is an example of the degree of difficulty that identifying two various activities can have; however, there are other examples such as Google Android (2018) and Google Shopping (2017).

Notwithstanding the above, once it is established which are the relevant market elements, it is necessary to identify the anticompetitive behaviours that are taking place and their causes. This is one of the most pertinent elements since it will determine the objectives that the regulatory measures to impose will have.

4.3. Defining the regulatory strategy to implement

This author considers that the remedies to be implemented must be proportional to the identified anticompetitive failures, thus complying with proportionality and necessity principles. In this sense, a structural separation will not be applied as a first measure, as Lina Khan (2020) has argued. Still, the necessary degrees of separation will be implemented to mitigate and prevent anticompetitive behaviour. As stated by the OECD (2016) and Martin Cave (2006), a wide range of regulatory measures can be applied between a vertically integrated monopoly and a complete ownership separation. The least intrusive level of separation is accounting separation, which has also been included as one of the precursor elements of the liberalisation stages of the telecommunications and energy markets. Apart from this degree of separation, Martin Cave (2006) identifies another six degrees of possible separation, namely: the creation of a wholesale division, virtual separation, business separation, business separation

with localised incentives, business separation with separate governance arrangements, and legal separation. Within this range of degrees of separation, one can be identified that allows correcting anticompetitive behaviour in a particular market. It should be noted that each of the degrees of separation may be accompanied by additional obligations that will enable the proper functioning of the regulatory model.

The six degrees of separation enunciated by Martin Cave (2006) refer to functional or operational separation, where competition is determined by the services provided and not only based on the owned infrastructure. This type of regulatory measures is intended to redesign the operational processes of companies to ensure a similar and non-discriminatory treatment towards other market participants (Cave,2006). Additionally, Cave (2006) mentions that the main separation measures will correspond to retail and wholesale activities and access services or those that do not involve the access of other market participants. The first separation model was evident in the analysed markets, both in energy and telecommunications; the first regulatory objective was to separate the upstream from the downstream and promote participation in the upstream level. In a complementary manner, the activities in which it was necessary to allow access and interconnection of the other participants were regulated.

In the *sub-examine* market, it will be necessary to establish if there is a necessity, especially if there is the possibility of generating a functional separation from upstream and downstream activities. Suppose the dynamics and efficiencies of the market allow the separation of these two levels in the value chain. In that case, it will open the possibility of generating a greater degree of competition and market entry in downstream activities. If this possibility is feasible, it must be accompanied by obligations of access to the inputs necessary to provide the service at the downstream level. In turn, the regulatory authority must establish the prices and conditions for upstream activities' access. Notwithstanding, it should not be forgotten that the adaptability of new technologies must be considered when the requirements and costs of access are set to avoid any regulatory obstacle on the market innovation.

Access obligations have the objective of providing other market players with the inputs or infrastructure necessary to provide a service and reduce the barriers to entry into the market (Walden,2018). However, they also reduce the possibility that agents will one day compete on an infrastructure basis. Even though interconnection is a type of

access widely used in the telecommunications sector, this author considers that using this tool in the digital market should be avoided since it imposes technical burdens on market agents and reduces infrastructure-based competition and market innovation[9]. In conjunction with the access obligations, prohibitions of discrimination must be established (Nachbart,2008), as they will make it possible to reduce a behaviour considered as anticompetitive by the competition authorities, self-preferencing.

If no degree of functional separation makes it possible to correct the anticompetitive behaviour identified, it will be necessary to implement a structural separation. The latter is quite an interventionist measure; therefore, it must need a detailed analysis of this implementation's necessity. The telecommunications and energy industries are not exactly similar to the digital ones, and special attention should be paid to network effects (synergies between business groups). Pike (2020) has pointed out that this measure can be an effective solution if it attacks the incentives and ability a dominant has to foreclose competition. The above is precisely the most significant benefit of this regulatory measure. It removes any incentive that agents have to favour another company in the market, a situation that does not occur in other degrees of operational separation.

Regarding the control and monitoring of regulatory measures, it is clear that functional separation measures will entail a greater degree of resources by the regulatory authority to verify compliance. For their part, the structural separation measures will require less investment of resources, while the foreclosure incentives of the competition were removed. However, the authority must exercise periodic controls on the conditions of competition of the regulated markets to verify if the regulatory measures are still necessary or if it is appropriate to modify them or remove them.

5. Potential flaws of the regulatory model

Although the regulatory proposal is designed to be adapted to the specific conditions of each relevant market, it may also face limitations, which the unique characteristics of digital markets will mainly cause. In the first place, it should be noted that the regulatory authorities may encounter significant difficulties when defining the relevant markets, together with the effects and dynamics generated in their networks. The

[9] Even though some authors see this as a possibility to eliminating consumer lock-in and encouraging innovation in service provision (Stigler Report 2019).

preceding will lead to a discussion on determining the type of market structure that could best promote innovation and competition (Khan, 2020). Thus, if the relevant market definition is not carried out properly, this will result in the inappropriate choice of regulatory measures. This situation could be remedied if it is established that the regulatory authority can intervene efficiently in regulated markets to correct any type of measure.

As a complement to the above, it is also necessary to consider the limitations of regulatory measures. Regarding functional separation, the following elements could be considered: the elimination of incentives for competition foreclosure; the control and monitoring of this measure can be devastating for the authority; information asymmetries; generation of inefficiencies by modifying the information flows and existing synergies; and, restraining potential competitive behaviour (although to a lesser degree than can be established in structural separations).

The limitations and difficulties that the structural separation measure could face are the following: losing efficiencies and network effects from vertical integration; failing these efficiencies could lead to an increase in the prices of services; risk of modifying businesses in such a way that they end up being economically unviable; and discouraging long-term investment and innovation. Regarding this last risk, it can be argued that the potential reduction in innovation should be balanced against the possible increase in complementary business innovations and the potential higher degree of competition in the market.

6. Conclusions

Digital companies have invested in developing and researching new technologies as a business priority, generating immense benefits to society. But at the same time, they are potent agents and have a high degree of influence over the lives of citizens. Therefore, the necessity to establish a regulatory regime that solves structural market failures and generates competitive conditions is evident. However, based on their characteristics as gatekeepers and SMS, they can cause anticompetitive effects in the market; and the consequences and remedies proposed by the competition authorities in the last decade do not seem to be sufficient to generate competitive conditions. The necessity for regulation is due to several elements, but mainly to the need to shape the

market, not just correct it. The competition authorities are not the ideal agent to undertake this task.

In this vein, the experiences of the energy and telecommunications sectors are of vital importance in the design of an *ex-ante* regulation for the digital market, insofar as they have similar characteristics, mainly in the telecommunications sector. Telecommunications have a technological disruption rate similar to the digital market, have similar network effects, and have a partially similar infrastructure. The European regulation of this market has promoted a functional and vertical separation, in which it is possible to generate more significant degrees of competition in the downstream markets. In turn, and to reduce entry barriers, it has established access and interconnection obligations that allow new competitors to provide telecommunications services without participating in the entire value chain and investing in infrastructure. To this extent, regulation is based on services, although it is expected that competition in markets may be based on infrastructure in the future.

Without a doubt, telecommunications regulation includes challenges; however, the model proposed in Europe turns out to be versatile and ideal for markets that suffer from frequent technological disruptions and can eliminate regulation in scenarios where it is unnecessary. The application of this regulatory model will only be imposed when the threshold test is approved and implements the tools granted by the competition law to correct market failures and promote competitive conditions within it. A regulation applied case by case, tailored and proportionated, must be implemented in digital markets since any type of intervention can imbalance the innovation incentives.

For its part, the experience of the U.S. counterpart has made it clear that structural separations cannot obey territorial criteria and that the dynamics sacrificed in a structural and vertical separation can turn out to be economically deficient. Experience has clarified that structural separation can be costly and challenging to perform, where many efficiencies can also be sacrificed. Although these measures eliminate the problem of the incentive of foreclosing competition, it is also clear that the literature believes that competitive conditions can also be achieved through less invasive remedies.

Regarding the energy sector, which also came from a State monopoly, the need to inject competition into the market and liberalise it became evident. For this, European and American regulations have sought to functionally separate the value chain and project competition in the two activities in which it was possible and be aware that it would never be possible to reach an infrastructure-based competition in the other two. This last element means that the energy and digital markets have a substantial structural difference and that, therefore, the general objectives of both regulations cannot be comparable.

According to past experiences, the regulatory model to be implemented in the digital sector should be versatile, tailored, seeking to establish the objectives of competition law, proportional and seeking to eliminate regulation where it is no longer necessary. Now, being aware that the characteristics of this market impose significant challenges, the regulatory authority must have the ability to intervene rapidly in the market to be able to remedy any situation that is required. The latter is one of the most critical sectors of the economy, and although it is not yet classified as universal service and that many people in the world live without access to it, these tools are indeed ideal for developing many activities today, and they will be even more in the future; therefore, it is necessary to take care of the competition generated in this market.

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