The Suitability of the EU Legal Framework to Regulate Multi-sided Digital Platforms: The Digital Markets Act

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Master Thesis carried out in the context of the
Master of Transnational Law
under the supervision of Prof. Doutor Luís Silva Morais

31st October 2022

To my parents, Cristina and Luís.

Table of Contents

Abstract

Digital platforms have been revolutionizing markets, creating new business models. These markets often have particular features that can take the form of negative externalities, such as strong network-effects, a tipping phenomenon and single-homing. A number of digital market players have gained and maintained dominant positions for decades now, while competitors and new entrants complain about the inexistence of a level playing-field in respect to market access and conditions. EU competition law has been called up to ensure fair market access while at the same time not hindering innovation. There is a widely shared perception that competition law, remedies and enforcement are slow and inadequate to deal with the new reality. In fact, numerous of traditional competition tools and remedies need to be adjusted to respond to the present and future needs. Nevertheless, measures have been taken before and the EU is now orchestrating a regulatory reform. The aim is to make Europe fit for the digital age. The Digital Markets Act, the Digital Services Act, the Data Governance Act, the Data Act and the AI Act proposal have faced some criticism, but are exciting pieces of legislation that will certainly change the reality and functioning of digital markets and platforms.

Key words: digital platforms, multi-sided markets, market power, abuse of dominant position, data, remedies, regulation, Digital Markets Act.

Abbreviations

ACCC	Australian Competition and Consumer Commission
AI	Artificial Intelligence
AI Act	Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain union legislative acts COM/2021/206 final (2021)
Art.	Article
BEUC	European Consumer Organization (Bureau Européen des Unions de Consommateurs)
CERRE	Centre on Regulation in Europe
CFI	Court of First Instance
CJEU	Court of Justice of the European Union
CPS	Core Platform Service
DaL	Data as Labour
DMA	Digital Markets Act
DSC	Digital Services Act
DSA	Digital Services Coordinator
EBA	European Banking Authority
EC	European Commission
EDPS	European Data Protection Supervisor
EPRS	European Parliamentary Research Service
EU	European Union
GDPR	Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and the free movement of such data (General Data Protection Regulation)
IoT	Internet of Things
IP	Intellectual Property
IPOL	Policy Department for Economic, Scientific and Quality of Life Policies
MS	Member States
NCA	National Competent Authority(ies)

OECD	Organisation for Economic Cooperation and Development
O-SIIs	Other Systemically Important Institutions
PSD 2	Payment Services Directive 2
R&D	Research and Development
SMEs	Small and Medium Enterprises
SSNDQ	Small but Significant Decrease in Quality
SSNIC	Small but Significant Increase in Cost
SSNIP	Small but Significant Increase in Price
TFEU	Treaty of the Functioning of the European Union
UK	United Kingdom
US	United States
VLOPs	Very Large Online Platforms

I. Introduction

The evolution of digital technologies has been responsible for a fast-paced revolution in our society and so the functioning of markets.

Fuelled by the introduction and mass spreading of smartphones, Big Data, AI, automation processes, Internet of Things (IoT) and algorithms, economies and services were deeply revolutionized.

The COVID-19 pandemic has contributed to an increasing dependence of online services that allowed digital platforms to grow more powerful.[1] Numerous types of activities (e.g., shopping, learning, working) switched from physical to online, resulting in an accelerated diffusion of emerging digital technologies.

Platforms managed to challenge outdated economic rationales, business models and regulated markets in many sectors[2], creating legal loopholes (e.g., Uber). Globalization, the spread of high-speed internet, the low price (frequently free), and the enormous number of potential users gifted digital platforms with huge profits.

The profits and market power achieved have allowed companies to maintain their strong positions in the market and to obtain powerful tools to conduct studies, analyse the market tendencies, consumer behaviour and predict competitors' potential moves.

Additionally, many digital platforms originally started out entering one specific market and have since expanded their business operations into multiple markets.[3] As an example, Uber expanded from a ride-hailing app to a food delivery and bike rental app.

At the same time, it should be noted that the digital economy increases the exclusion of citizens without access to technology.[4]

Problems have risen since the law is normally slow adapting to address potential negative effects of digital services. Whilst platforms offer new and low-priced services to users, at the same time they create barriers for new players to enter the market.

There is a wide array of types of market failure that may apply to digital platforms. The concept of "Uberisation"[5] has been used to describe platforms like Uber that aggressively compete or take over entire economic sectors by providing low-cost services. Thus, some authors[6] have used the terms "disruptive innovation" and "taking economy" (rather than "sharing economy") to describe the potential negative effects that platforms cause[7].

Law has been called to address multiple challenges including uncompetitive behaviour, but also to solve other law-related issues including the reduction of job security, the avoidance of taxes, data privacy and threats to safety, health and compliance standards.

[1] The size of the digital economy was estimated at between 4.5% to 15.5% of global GDP in 2019, according to the Digital Markets Act (2020), p. 1.
[2] Buijovets, R. (2020), p. 11.
[3] Stucke, M. S. and Ezrachi, A. (2017), p. 1259.
[4] For this topic, see Borsenberger, C. et al. (2021).
[5] Degryse, C. (2016), p. 7.
[6] See Calo, R. and Rosenblat, A. (2017).
[7] Buijvoets, R. (2020), p. 13.

Incumbent firms are being pressured to adapt their services in response to the rising competition, either by lowering the prices or improving the quality[8].This may be deemed unfair given the economic advantages that digital platforms enjoy over traditional service providers, such as cheaper fixed costs (e.g., Airbnb).

Another challenge is data protection failure and privacy concerns. Concerns over privacy regarding the use of digital platforms are emerging as digital platforms collect and store an immense amount of data – including information such as user movements or search history.

In a monopolised market, data is concentrated in a few firms. Dominant players can use their technological design to track consumers, collect their data, develop profiles, and target them with ads. The use of digital platforms generally comes at no cost for the user. On the other hand, platforms that gather and store data have access to a lot of personal information. Since data is a crucial component of the majority of digital markets, it is crucial to ensure that the public interest and data protection are guaranteed.

To mark the importance of tackling this regulatory challenge at the European Union (EU) level, the European Commission (EC) has nominated for the first time a Commissioner, Margrethe Vestager, with a specific mandate to address the political priority of creating a "Europe Fit for the Digital Age". Together with the Digital Services Act (DSA)[9] and Digital Markets Act (DMA)[10], regulatory measures at the EU level have been implemented to address the regulatory challenge outlined in the present Thesis.

Besides the European level, lower levels of authority are also challenged by digital platforms. Since a legislative framework on platform regulation at the EU level is only now starting to come to action, most regulatory responses were expected to come from Member States (MS).

The different local legal approaches led to cross-country asymmetries in the EU. Uber is an example, which in some jurisdictions has been the subject of legal challenges or outright bans[11], whereas other MS used it as a vehicle for much-needed reform in historically highly regulated markets.

As such, the research question concerns the suitability of the EU legal framework to regulate the impacts of digital platforms. In other words, is the existing EU regulation sufficient to (1) overcome the challenges brought by digital platforms and (2) not baffle their potential, whilst (3) ensuring a level playing field?

This Thesis is divided in six chapters, aimed to effectively and satisfactorily answer the research question proposed. With the view to achieve this objective, the first step (disregarding the introduction – Chapter I) will be providing a definition of an important concept used throughout this Theis: multi-sided markets (Chapter II). The second phase will be reserved for the description of the challenges the EU competition law faces (Chapter III), namely defining the relevant market for multi-sided markets, the trend of market concentration in digital markets,

[8] EPRS (2017), p. 5.
[9] Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act).
[10] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector (Digital Markets Act).
[11] As an example, as this date, Uber does not operate in Denmark but operates in Portugal.

the importance of data in zero-price markets and lastly the inadequacy of traditional tools like the SSNIP test. In the meanwhile, comments and solutions are proposed.

Thirdly, a thorough investigation of the adequacy of some remedies in the EU (Chapter IV), followed by and a description and assessment of the potential of the newly crafted regulation, the DMA, will take place (Chapter V). Lastly, the conclusions of this Thesis will be exposed (Chapter VI).

The cut-off date for relevant information and developments (case law, various elements of research) included in the dissertation is October 15, 2022 (only exceptionally later developments will be considered).

II. Two/Multi-sided Markets

Economists started to focus on the analysis of multi-sided markets as an important and distinct type of markets in the 2000s, propelled by the publication of a paper by Rochet and Tirole.[12]

Nearly 20 years have passed since the initial discussions of the concept of two-sided markets, yet there is no agreement on a definition.[13]

Rochet and Tirole[14] wrote that *«Two-sided markets are generally defined as markets in which one or several platforms enable interactions between end-users and try to get the two or multiple sides "on board" by appropriately charging each side»*.

Regarding this concept, Hagiu and Wright[15] mention that *"multi-sided platforms enable direct interaction between different sides of the platform, while each side is affiliated with the platform"*.

Evans and Schmalensee[16] define a multi-sided market by the existence of two or more groups of users who need each other but cannot capture the value of this mutual need on their own, hence depending on the platform to facilitate interactions and value that would not exist without it. The value is created by coordinating the sides of the market and ensuring that there is enough demand to match the supply and vice versa.

A shopping mall is a physical platform. It provides a place where shoppers and stores can connect. A ride-hailing app is an online platform. It uses software, accessed through Internet-connected phones, to match up drivers and passengers.

Two-sided markets *"depend on choices (mostly the strategy of pricing) that market intermediaries make"*, as Rysman[17] said. In multi-sided markets, there are two different types of network effects or network externalities: usage externalities, that arise from joining the platform; and membership externalities: the platform gains value as more users participate on each side. For instance, Uber is highly dependent on the number of users on the platform, because drivers will only join the app if there is a sufficient amount of demand from

[12] Evans, D. S. (2016), p. 5.
[13] Kananen, A. (2021), p. 12.
[14] Rochet, J. and Tirole, J. (2004), p. 2.
[15] Hagiu, A. and Wright, J. (2015), p. 5.
[16] Evans, D. S. and Schmalensee, R. (2012), p. 7.
[17] Rysman, M. (2009), p. 126.

passengers.[18] The presence of numerous drivers on the platform is advantageous to users because it reduces waiting times. The same logic applies to price.

There is also a price phenomenon that Uber explores called "surge pricing"[19]: a dynamic form of pricing which adjusts the prices of rides to match driver supply to rider demand at any given time[20]. When there is a lot of demand or when many users are eager to utilize the service, Uber's surge pricing goes into effect. The more intense their desire for a ride is, the higher the surge price is likely to be. Several factors contribute to the desire for rides (and high demand). Large numbers of people want to go out on weekend nights or need rides to a big concert.[21]

III. EU Competition law challenges

3.1. Tipping market: establishing dominance

The more participants are in a digital platform, the more individuals are drawn to join the correspondingly large network. In the end, the company that normally "conquers" the market first has the most users ("winner takes it all" phenomenon).

Market concentration is especially common in digital marketplaces, according to the 2019 UK Report of the Digital Competition Expert Panel. As an example, Google has held a high market share in the online search market worldwide and in the UK for more than a decade. In December 2018, over 92% of online page views that originated from a search engine were estimated to come from Google.[22]

An argument often invoked from Big Tech to justify this tipping phenomenon is that the largest platforms in digital markets are compelled to continuously improve their service and innovate due to the threat of being replaced. For instance, Nokia seemed to hold an unbeatable position in the mobile phone market until the smartphone revolution made it irrelevant.[23]

In their work, Coveri[24] et al. identify four drivers through which control is exerted and power is accumulated. Bedre-Defoile and Nitsche[25] have identified six factors that foster tipping in markets.

Examples are extreme scale economies, which often result from nearly zero marginal costs to add users; strong network effects, meaning the more attractive a platform is the more users are on it; lock-in effect, meaning that users will normally "stick" to the platform with more users, being unwilling to switch to another platform; and data driven advantages.[26]

A small number of platforms have emerged with considerable economic power. Typically, they feature an ability to connect many business users with many end users which allows them to

[18] Koepp, H.V. (2019), p. 5.
[19] "How surge pricing works", Uber.
[20] "Uber's Surge Pricing: 4 Reasons Why Everyone Hates It", Government Technology (2016).
[21] Ibid.
[22] For an opposing view (market fragmentation) see Bresnahan, T. et al. (2015).
[23] Digital Competition Expert Panel (2019), p. 38.
[24] Coveri A. et al. (2021), p. 3.
[25] Bedre-Defolie, O. and Nitsche, R. (2020), p. 611.
[26] DMA proposal (2020), p. 15.

leverage their position. These platforms are structurally extremely difficult to challenge by entrants, irrespective of how efficient they may be.[27]

The combination of those elements is likely to frequently result in significant bargaining power imbalances and, as a corollary, in unfair practices and conditions that affect prices, quality, choice, and innovation.[28]

All the above mentioned is normally responsible for the creation of conditions for the existence of monopolies and "winner takes it all" situations. In fact, Art. 102 TFEU is one of the most used legal provisions in the EU to deal with competition hurdles, since generally dominant platforms often perform abusive conduct.

3.2. Defining the relevant market

Market definition is one of the most important issues in the legal analysis. The inadequate definition of the market can lead to the annulment of a decision. If a market is too narrowly defined it may lead to an undertaking being falsely considered as dominant, and on the other hand, a too broad market definition may lead to a dominant undertaking being excluded from the scope of Art. 102 TFEU.

Procedurally, the EC first defines the relevant market, then assesses whether the undertaking holds a dominant position on that market, whether there has been an abuse of that dominant position and whether there is an objective justification for the conduct. Undertakings can produce evidence of their conduct being objectively justified by business reasons or procompetitive effects.

In the definition of the relevant market, the product market is defined first, which is followed by the geographic market for that product.

Paragraph 2 of Commission's Notice on defining the relevant market[29] states that "*The objective of defining a market in both its product and geographic dimension is to identify those actual competitors of the undertakings involved that are capable of constraining those undertakings' behaviour and of preventing them from behaving independently of effective competitive pressure. It is from this perspective that the market definition makes it possible inter alia to calculate market shares that would convey meaningful information regarding market power (...)".*

Nowadays, digital platforms function mainly on a cross-border level. Globalization created scenarios where the geographic market might be harder to define. Particularly in digital products, the markets are often worldwide.

An important issue whether the relevant market should include all the sides of the platform, or whether a market should be defined for each of its separate sides.

Two-sided markets can be split into transaction and non-transaction markets. Two-sided non-transaction markets, such as most social media, are characterized by the absence of a transaction

[27] Ibid.
[28] Ibid.
[29] Commission Notice on the definition of relevant market for the purposes of Community competition law (97/C 372 /03) (1997), p. 1.

between the two sides of the market and, even though an interaction might exist, it is usually not observable, making it impossible to charge a per-transaction fee.[30]

As explained in their paper, Filistrucchi[31] et al. give an example: *"A reader may read an advertisement placed by an advertiser. Such interaction is even observable online (when one clicks on an online ad to open it) and, in that case, the platform can charge for it. However, only a delayed transaction might be present (if the person who saw the ad buys the advertised product). This transaction is usually not identifiable (as it is impossible to track whether one bought a product because one saw an ad), therefore the platform is unable to charge a fee for it."*

Two-sided transaction markets, such as payment cards, are instead identified by the existence and observability of a transaction between the two groups of users. As a result, the platform may impose a "two-part tariff": a fee for joining the platform as well as a fee for utilizing it.[32]

Kananen[33] formulates the question: what is then considered a transaction?

About this topic, the author wrote *"Could, for example, viewing or reacting to a boosted post on Facebook be considered as a transaction and observable interaction as one side has paid to reach a certain amount of individuals? In "traditional" markets, such as radio or television advertising, one side buys a certain spot without a guarantee of how many individuals will interact with that ad. While the pricing of those ads may differ based on the quality (time slot, place in the newspaper, size or length of ad), the customer does not pay for receiving a certain quantity of an audience that can be observed, which it does while boosting a post on a social media channel. As Facebook, in certain circumstances, charges a fee per click, one could argue that Facebook is not like most advertising-supported media and could be considered to be a transaction market instead of a non-transaction market".*[34]

With this being said, one can conclude that in the case of social media platforms (as Facebook etc.) at least two markets should be defined.

This goes in line with the argument that markets with an advertising side are usually defined separately from the user side. In its Facebook/WhatsApp merger decision[35], the EC similarly identified separate relevant markets for the services provided to users on the one hand and the services offered to advertisers.

Filistrucchi[36] et al. refer that *"In a case involving newspapers, a product might be in the relevant market on the advertiser's side but not on the readers' side. For instance, suppose that people do not regard TV and newspapers as substitutes because they read the newspaper on the metro and watch TV at home. However, if advertisers are interested in reaching each person only once during a day, they will tend to regard TV and newspapers as substitutes. TV would then be in the same relevant market as newspapers on the advertiser's side but not on the reader's side".*

[30] Filistrucchi L. et al. (2013), p. 3.
[31] Ibid, p. 3.
[32] Ibid.
[33] Kananen, A. (2021), p. 34.
[34] Ibid, p. 35.
[35] Case N. Comp/M.7217 – Facebook/Whatsapp (Regulation (EC) No 139/2004 Merger Procedure).
[36] Filistrucchi L. et al. (2013), p. 6.

According to Wismer and Rasek[37], *«this seems reasonable since newspapers and magazines usually do not enable a direct transaction between readers and advertisers, as they do not necessarily need to get advertisers "on board" to serve readers, and as the products considered as substitutes usually differ between readers and advertisers»*.

One might be tempted to argue that, when one side of the market does not pay, only one market should be defined. We are used to think that in a market one party buys a product from another party. Authors like Bidarra,[38] defend that the fact that the demand on both sides of the platform is interdependent means that focusing solely on the analysis of a single side of the platform isn't correct. The competition analysis must consider the platform as a whole, taking in consideration the interdependencies of each side of the platform and their balancing.

Offering a free product may be a profit maximizing strategy for a platform. By giving away a product for free, a platform boosts the number of people receiving that product. Although it loses money on one side, it may recover the loss on the other side, making higher profits overall than if it were to sell on both sides at a positive price (e.g., nightclubs charging men higher prices and giving free entrance to women). Usually, one side subsidises the use of the platform by the other. This is a reason why the argument "no price no relevant market" does not apply to a two-sided market.[39] It is commonly known that digital companies thrive on users' data, therefore it is often argued the price is paid in another currency: data.

The question can thus be rephrased as whether two markets should be defined or only one market encompassing the two sides. One of the consequences of defining only one market is that a firm would be on none or both sides of the market. Instead, defining two interrelated markets would allow a platform to be on one side of the market but not on the other.

Jullien[40] explains the proposed solution by Fillistrucchi et al. The suggestion is that in two-sided non-transaction markets, two or more markets need to be defined, whilst for two-sided transaction markets one market including both sides should be defined. When one defines two different markets (one for each side) the issue is whether one should look at each side of the market independently or jointly, that is whether one should consider the role of the indirect network effects when defining the market.

However, the point of view of Fillistrucchi et al. is not shared by everyone in the legal community. As Kananen[41] explains, *"there seems to be an agreement that transaction and non-transaction markets have different characteristics, but these characteristics might not justify the different treatment in terms of market definition"*. As an example, Niels[42] mentions that *"In nothing of the above does the distinction between transaction and non-transaction platforms matter. Nor do the characteristics of transaction and non-transaction platforms that are frequently mentioned in the debate justify a different approach to market definition."*

It should be noted that neither the General Court nor the Court of Justice of the European Union (CJEU) have yet explicitly commented, at least in actually conclusive terms, on how the two-

[37] Wismer, S. and Rasek, A. (2017), p. 7.
[38] Bidarra, A.G. (2018), p. 53.
[39] Filistrucchi L. et al. (2013), p. 5.
[40] Jullien, B. and Sand-Zantman, W. (2019), p. 20.
[41] Kananen, A. (2021), p. 35.
[42] Niels, G. (2019), p. 24.

sided nature should be taken into consideration when defining the relevant market for the purposes of Art. 102 TFEU.

3.3. Market power

The CJEU[43] has defined a dominant market position as *"a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately its consumers"* (Paragraph 38 Hoffman-La Roche).

Market power is the capacity to restrict production, increase prices and deny consumers choice. Gaining market power through an effective competitive process is desired since it implies efficient production processes and high-quality goods and services. The most effective company is anticipated to prevail in the competition for a specific market. Due to this, a dominant market position is not viewed by competition law as being anticompetitive or illegal *per se*. Competition law focuses on instances where market dominance is abused or illegally obtained.[44]

When determining market power, the focus is put on evaluating the barriers of entry for potential competitors, and therefore the likelihood of future competition. In line with this approach, factors like indirect network effects, economies of scale, multi-homing[45], access to data and innovation potential of digital markets, market shares of rivals, countervailing buying power, the possibility of new entrants to join the market, ownership of Intellectual Property (IP) rights, etc. need to be considered when determining the market power of digital platforms.

The ultimate objective of the analysis requires a hard look at the interdependencies between all sides of platforms. Some[46] suggest that instead of analysing whether users view services as each other's substitutes, the assessment of competitive barriers should begin by analysing how digital platforms generate turnover and profit and focus on what may steal turnover/profits.

It should be noted that the relevance of market shares as an indicator of market power have been diminishing since the dynamics of digital markets have shown that market shares can change drastically within short periods of time.

A possible alternative to market shares could be the number of unique users that digital platforms receive. The statements made by platforms in their corporate annual reports and in their tax report may give a clearer picture on the true competition on the market. However, the aspects that are crucial for determining actual competition in the case of digital platforms have received little attention. Instead, the volatility of the digital markets has drawn the assessment's attention towards the barriers of entry of potential competition.[47]

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[43] Hoffmann-La Roche & Co. AG v. Commission of the European Communities, Case 85/76 Judgment of the Court of 13 February (1979).
[44] Parker, G. et al. (2020), p. 9.
[45] Users won't use various services at once if they are basically the same or if using a different platform takes a lot of time. As a result, consumers will single-home. Under single-homing circumstances, effective competition depends on consumers' willingness and ability to migrate to a different platform if it has a better product. Users may have the desire to multi-home in other markets. This can translate, for instance, into a user having several apps for the same service on their smartphone.
[46] Policy Department A (2015), p. 56.
[47] Mandrescu, D. (2017).

The value of data for the purposes of competition is still debated. Although access to large amounts of data can contribute greatly to the success of a digital platform, its value diminishes significantly in the absence of other essential tools including effective processing algorithms.

Clarity is required in the measuring and evaluation of market power in relation to data. In situations where there are numerous relevant markets, the task may even be more challenging. Clarification is also necessary to develop remedies. If dominance is established based on an average of market power in a number of relevant markets, the finding of dominance might not be consistent with the specific situation in each of those markets.

3.4. The importance of data

3.4.1. Introductory considerations

Customer information is valuable for any business, but even more for digital platforms that often depend on the acquisition of data.[48]

Data is a non-rivalrous good, which means that just because one entity has gathered some data doesn't mean that others can't do the same. The platform may better predict what goods users will be interested in by gathering and analysing data on users' purchase habits, their virtual shopping carts, and the items they have viewed, liked, or rated. Graef[49] gives the example of the features like "Customers Who Viewed This Item Also Viewed" or "Customers Who Bought This Item Also Bought".

Digitalization, in principle, increases market transparency, although it may lead to the emergence of new information asymmetries. It should be questioned whether consumers are aware of the categories of data collected and whether consumers value data and accept its exchange for access to services. Are consumers able to compare services even if some charge data and others charge money? Generally, users are not fully aware of the value their personal information has to companies. If users do not know the value of their personal information, they cannot assess whether the price for the service they pay is reasonable.

For instance, AT&T[50] offered customers who agreed to be tracked online a $29 monthly discount on their broadband connection, and Amazon offered discounted prices on Kindle tablets and e-readers to customers who were willing to allow targeted advertisements to be displayed on their device.[51]

The issue in question is whether the effort to gather the data necessary to compete with incumbents on equal terms constitutes a strong competitive advantage and barrier to entry.[52]

While some authors[53] claim that data is becoming easier and easier to access, Stucke and Grunes[54] say that one must be sceptical of claims that data is low cost and widely available. They wrote that *"if personal data was freely available, platforms would not spend a considerable amount of money offering free services to acquire and analyse data"*.

[48] Goldfarb, A. and Tucker, C. (2012), p. 70.
[49] Graef, I. (2015), p. 478.
[50] AT&T gives discount to Internet customers who agree to be tracked", AdAge (2015).
[51] Graef, I. (2015), p. 475.
[52] Ibid, p. 501.
[53] Tucker, D. S. and Wellford, H. B. (2014), p. 7.
[54] Stucke, M. E. and Grunes, A. P. (2015), p. 7.

Uncertainty arises on how to apply traditional tools when users don't pay in a currency. Magali Eben[55] assesses whether personal data can be conceptualized as a price, to enable a substitution analysis for zero-price services. She states that only when consumers consciously exchange their personal data for a service, we are able to derive any useful information from their behaviour (in the case of an increase in data collection). Magali discusses what substitution analysis could look like if monetary price would be replaced by personal data-price (SSNIP test): how would users react to an "increase" in data price (higher collection of data) and what would the difficulties be in implementing such test.

3.4.2. "Zero-price services"

In today's digital economy we are surrounded by products and services provided free of charge. Many are the benefits that users receive from such services: multi-homing, the opportunity to quickly search and compare prices, the possibility of trying a service before opting for a paid premium version, etc. However, zero-price digital markets often exhibit a high degree of concentration. Several competition cases like Google's abuses of dominant position have posed the lens of competition law on zero-price services, questioning their effects on consumer welfare.[56]

To explain the zero-pricing strategy, Anderson[57] uses the example of Gillette, to which is attributed the famous "razor and blade" business model: *"giving away razors, useless by themselves, to create demand for the blades and make profits from them so that consumers would pay in one way or another. The same works for "buy one get one for free", which is another way to call a 50% discount and a "free shipping" when the shipping's price is translated into a higher price".*[58]

Newman[59] criticizes Anderson's work. According to Newman, demonstrating that zero-price markets are markets requires identifying some costs incurred by zero-price market users that are similar to the monetary costs embedded in prices. It requires identifying "exchanged nonmonetary costs." Zero-price markets feature at least two types of exchanged nonmonetary costs: information and attention costs.

(i) Information costs

Zero-price services thrive on user information. Users typically provide information in exchange for zero-price goods. Information costs reflect a cost to users, much like exchanged monetary costs do in markets with positive prices. When the benefits offered exceed the costs to the user, a rational user will give away its information.

Newman[60] gives the example of the Gottlieb v. Tropicana Hotel & Casino: *"In Gottlieb v. Tropicana Hotel & Casino, Ms. Gottlieb accepted a casino's offer, which entitled her to one free spin of the Million Dollar Wheel each day. The casino did not charge a fee membership. The application process did, however, require applicants to submit their personal information to the casino. The casino's marketing department . . . used that information to tailor its*

[55] "Free Isn't Free? Competition law starts grappling with 'zero-price' services" – CREATe (2021).
[56] Mazzotta, A. (2019), p. 1.
[57] Anderson, C. (2009), p. 11.
[58] Mazzotta, A. (2019), p. 4.
[59] Newman, J. M. (2018).
[60] Newman, J. M. (2015), p. 168.

promotions. Allegedly, Ms. Gottlieb swiped her card and spun the wheel, which landed on the $1 million prize."[61]

"The casino refused to pay, arguing that Ms. Gottlieb did not exchange anything for the promise. The court observed that by . . . allowing [her card] to be swiped into the casino's machine, [Ms. Gottlieb] was permitting the casino to gather information about her gambling habits.... The court rightly recognized that a mutual exchange had taken place between Ms. Gottlieb and the casino, such that an enforceable contract was formed. The fact that Ms. Gottlieb exchanged her personal information instead of money was irrelevant."[62]

(ii) Attention costs

Zero-price markets became successful in part due to user attention to advertisements. Ads are often used in freemium business models. In freemium models, customers must often choose between paying for a service altogether or sacrificing their attention to an ad-sponsored version.[63]

Watching ads requires time. Ads are "nuisances" for the users they are trying to reach. An attention cost is incurred when attention is used to acquire the desired product. Ads are typically regarded as "unsolicited" when they are delivered to a person without that person's consent. Telemarketing calls and spam emails are typical cases.[64]

Attention costs are often frustrating to their targets, who perceive that they have not obtained anything of value in exchange.[65]

Like Gottlieb, Newman[66] uses other example to explain attention costs: *"In Jennings, Steve Jennings listened to radio station KSCS, which promise to "play at least three-in-a-row, or we pay you $25,000." Jennings alleged that KSCS then repeatedly played only two songs in a row and that he had unsuccessfully demanded the $25,000. KSCS held that because Jennings hadn't paid anything for access to radio programming, no consideration supported the station's promise to pay $25,000. The court recognized that Jennings could have listened to any station, but he listened to KSCS. KSCS, in turn, had benefited from its promise by gaining new listeners, including Jennings. Attention costs signalled the presence of an exchange."*[67]

This example demonstrates the "illusion of free": there are information and attention costs associated. Nothing is entirely free. Newman criticizes the zero-cost premise. He affirms it is based on a mathematical fallacy: costs that continuously shrink will eventually reach zero. This isn't true. A cost that is close to zero is not close enough for a rational firm to simply ignore it.[68]

The point is that to a for-profit firm even almost-zero costs are not too cheap to matter. Newman uses an example: salami slicing consists of taking a small cut from each of many transactions. While the individual sums are small, the total amount can be substantial.[69]

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[61] Rena Gotlieb, et al. v. Tropicana Hotel and Casino v Redland Insurance Co., et al., (109 F. Supp. 2d 324) (2000).
[62] See above Note 60.
[63] Ibid, p.169.
[64] Cisneros, D. (2003), p. 4.
[65] Newman, J. M. (2015), p. 170.
[66] Ibid, p. 171.
[67] Steve Jennings, Appellant, v. Radio Station KSCS, 96.3 FM, Inc. 708 S.W.2d 60 (Tex. App. 1986).
[68] Newman, J. M. (2018), p. 532.
[69] Ibid, p. 533.

The showing of the existence of these costs prove that zero-price services are not deprived of cost. This illusion is explored by platforms in order to attract users.

3.4.3. Potential approaches to deal with the challenges related to data

(i) Data as a separated market – specialized asset

Market definition requires the existence of supply and demand for the product or service.[70] While for example Twitter[71] and other platforms license data to third parties and thus are active on a "real" market for data, other digital platforms do not trade data. These platforms typically make it clear in their privacy policies that they don't sell user information to third parties. The services provided to users and advertisers only use data the platform have gathered about them.[72]

Current competition law rules only permit the definition of a market for data in the event that the data is actually traded. However, I agree with Graef's position that the definition of a separate market for data can be helpful in some cases.

The definition of a market for data would suit digital platforms which do not gain revenue by selling data, but rely on deriving benefits from valuable information they collect. This approach allows for a look beyond current usages of data in the relevant markets for existing products and services. Mergers are often motivated by the underlying dataset of the undertaking.[73]

Regarding abuse of dominance and EU merger control, the definition of an extra market for data might be useful *"to evaluate the competitive situation beyond the relevant markets for the current services offered to users and advertisers"*, as mentioned by Graef.[74]

Treating data as a specialized asset would allow courts to define a potential market for data in addition to the relevant product market.

(ii) Treat data as labour

Data is being treated as free land for tech companies to derive information from digital interactions. This leaves users completely deprived of protection from the invasion of their privacy and leaves them in the absence of any bargaining power to negotiate the payment for their data, as well.[75] Treating data as labour (DaL) operates a shift of ownership of data from the companies to the users and entails that the use of these platforms should be viewed a labour contract for each individual.

Embedded in the concept of fairness is the notion that competition law should be used to prevent unfair transfers of wealth.[76] Art. 101 and 102 TFEU include provisions which tackle unfair selling or buying terms.[77]

Nevertheless, using competition law to promote fair distributions of wealth is not the most appropriate tool.[78] Taxation can perform this task more effectively, eliminating the need for competition law to subjective judgements.[79]

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[70] See also on the topic, Harbour, Palmela J. and Koslov, Tara I. (2010).
[71] "How Twitter Makes Money", Investopedia (2022).
[72] Graef, I. (2015), p. 479.
[73] Ibid, p. 493.
[74] Ibid.
[75] "Should we treat data as labor? Let's open up the discussion", Brookings (2018).
[76] Lande, R. H. (1982), p. 93.
[77] BEUC (2018), p. 14.
[78] Regarding consumer and total welfare, see L. Kaplou (2011).
[79] BEUC, p. 14.

DaL could serve to weaken large platforms, since bigger sums of money would be owed to users in respect to the acquisition of their data. The assumption is that the dominant undertakings possess bigger amounts of user data. At the same time this measure sets a level playing field, submitting all undertakings to the same requirements.

This idea calls for the establishment of "Data Labor Unions" or independent labor unions, to strengthen users' bargaining power and to determine the price individuals get paid to benefit from the services offered by digital platforms. To counterbalance network effects, unions could also set lower prices for entrant platforms.[80]

With projections that AI might automate up to 50% of jobs in the next decades[81], DaL has the potential to constitute an important portion of income.[82]

(iii) Data sharing/ Data portability

The right to data portability is contained under Art. 20 of the GDPR[83]. It can be seen as an extension of an individual's right of access under Art. 15 of the GDPR.

Data portability calls for individuals to be empowered to control the transfer and reuse of their data among various data controllers and processors. As a result, data subjects are able to avoid becoming locked into a single platform, while at the same time are provided with a regulatory framework to ease the migration of data across institutions.

Experience from the banking sector can provide guidance on how data portability might work. As an example, Directive (EU) 2015/2366[84] (Payment Service Directive 2 – PSD 2) seeks to open up payment markets to new entrants, leading to more competition, greater choice and better prices for consumers. It aims to open the EU payment market to companies offering consumer or business-oriented payment services based on access to the payment account, which allows a payment service user to, for example, have an overview of their financial situation at any time.

The GDPR provides a set of rules for data sharing, but only in the case that data is related to an identified or identifiable person. In principle, the user's consent is needed. Consent is, however, not required in a number of situations when the risks of data sharing are small and potential usefulness of data sharing is high (Art. 6 GDPR).[85]

Adding to the GDPR, the "essential facilities doctrine" might be a tool used in situations where there is a refusal to give competitors access to user data. The issue is better explained in Graef's[86] work: *"By refusing rivals access to their datasets, dominant platforms may foreclose competition and engage in abusive behaviour under Art. 102 TFEU. The question rises whether the denial of a dominant platform to grant competitors access to user data could constitute a refusal to deal and lead to liability under the essential facilities doctrine"*.

The term "essential facility" often comes into play where an undertaking seeks access to a physical infrastructure such as a railway, pipeline, etc. and when access to the physical

[80] Parker, G. et al. (2020), p. 20.
[81] "AI is quietly eating up the world's workforce with job automation", VentureBeat (2022).
[82] Arrieta-Ibarra, I. et al. (2018), p. 5.
[83] GDPR (2016).
[84] Directive (EU) 2015/2366 of the European Parliament and the Council of 25 November 2015.
[85] Ibid, p. 25.
[86] Graef, I. (2016), p. 155.

infrastructure cannot be reasonably duplicated for technical, legal or economic reasons. In this context, a "duty to deal" or "duty to share essential facilities" only applies if the competitors are unable to obtain the goods and services in question from a different source and are unable to build or invent them on their own, unless the facility owner has a valid business reason for the refusal.

However, neither the US nor the EU courts have ever formally recognised the doctrine's existence.[87] Only four decisions by the EC explicitly referred to "essential facilities".[88]

Data sharing does entail a downside. It might appear procompetitive, but it might not be entirely desired to its users. Users may want to single-home and might not want to give other firms consent to use their data. The fact that a user allowed a company to access their data does not mean a general consent of access to data.

In the EU context, the Schrems II case[89] must be referred. Regarding the transfer of data outside the EU, the CJEU stated that the level of data protection offered by the third country should be "essentially equivalent" to that being offered in the EU. This decision limits the transfer of data outside the EU, in order to grant citizens in the EU adequate data protection.

An additional limitation of data sharing is the fact that new services may be unable to compete using data that rapidly becomes outdated.[90]

Finally, conflicts with other laws can arise when implementing data portability. Given the money and effort put into creating them, datasets may be protected by IP rights. This Thesis will not conduct an extensive IP rights analysis.

(iv) Data Rating Agency

According to some analysts, new regulatory authorities should be created at the EU level, namely because existing platforms make it challenging to identify the relevant geographic market. The idea to establish a rating agency [91] for platforms seems not convincing at first sight.[92]

However, despite the above mentioned, this proposed solution must be referred because of its originality. The creation of a data rating agency - that could be, for example, the European Data Protection Supervisor (EDPS)[93] or a private entity - could be responsible for the qualification of different categories of platforms based on the type and amount of data they possess. The more the amount of data collected or the more sensitive the data, the stringer the obligations and fines would be.

As another suggestion, the Data Rating Agency could function like a Risk Rating Agency regarding data and would conduct market studies regarding the functioning and the risks of the data possessed by large digital firms. What is desired is to give users a "confidence statement".

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[87] Fox, E. and Crane, D. (2020), p. 369.

[88] B&I Line PLC v. Sealink Harbours Ltd. & Sealink Stena Ltd. (1992); Sea Containers v. Stena Sealink (1994); Commission Decision 94/119/EC - Port of Rødby (1994); and Commission Decision 94/894/EC - Eurotunnel (1994).

[89] Data Protection Commissioner v. Facebook Ireland Ltd and Maximilian Schrems (2020).

[90] OECD (2021), p. 18.

[91] This idea supported by the French Conseil national du numérique is, for instance, discussed "Une agence de notation des géants du net, une fausse bonne idée?" - La Tribune (2015).

[92] Strowel, A. and Vergote, W. (2016), p. 10.

[93] To know more about the EDPS, see "European Data Protection Supervisor (EDPS)", European Union.

Facebook users would be dissatisfied if Facebook was among the worst rated platforms regarding data privacy and would consider switching. Platforms would then compete on how they process data.

Credit rating agencies and "Other Systemically Important Institutions" (O-SIIs), in the banking sector mitigate systemic risks. Because of their importance and systemic risks associated, O-SIIs are subject to stricter requirements. Because of their size, it wouldn't be too big of a stretch to consider that very large digital platforms might raise systemic risks regarding data.

On a reflexive note, an impact assessment would most likely be necessary in order to calculate the costs of creating such agency and the costs associated with its activities, ensuring the benefits clearly surpass the costs. One can also question the suitability and the capacity of the EU to access enormous amounts of data from a multiple number of platforms. Lastly, there is a possibility that the platforms do not fully disclose the data they possess. To prevent those cases, on-site inspections might be necessary.[94]

(v) Regulate the use of data

Regulating the use of data will most likely be responsible for legal certainty and a reduction of legal fragmentation between EU MS.

In this context, in the beginning of 2022, the EC proposed (without prejudice to the application of the GDPR) the Data Act[95], with the aim of ensuring fairness in the allocation of value from data among actors in the data economy and to foster access to and use of data; and launched the Data Governance Act[96] - a framework for the re-use of data held by public authorities.

Even though these Acts will certainly be a topic of discussion, they will not be further developed for the purposes of this Thesis.

3.5. The applicability of the SSNIP test and its alternatives

3.5.1. Applying the SSNIP test to digital multi-sided markets

In the context of the hypothetical monopolist test, the defined market in each case contains the product for which a hypothetical monopolist could increase its prices in a profitable manner on a long-lasting basis. The SSNIP test determines if a concerned undertaking could implement a small but significant non-transitory increase in price (SSNIP) of 5–10% in a profitable way.

Due to the two or multi-sided nature of platforms, defining the relevant market will be challenging. Both substantive and instrumental issues exist. Substantive difficulties concern the difficulties to determine the number of markets that need to be defined in each case, as digital platforms deal with at least two separate groups. Instrumental difficulties concern the reduced compatibility of the legal and economic tools used for the purpose of the market definition.[97]

Given that a 5–10% increase of a price of zero is still zero, it appears possible to conclude that this method becomes inoperable when dealing with free services.

[94] See Art. 21 of the DMA.
[95] Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act).
[96] Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act).
[97] Mandrescu, D. (2017), (unpaged).

Although the SSNIP test is not required by law to be used in the context of market definition, its growing practical importance demands investigating adjustment possibilities.

Gal and Rubinfeld[98] point out that the price-centred approach of defining a market overlooks other forms of market power that are particularly relevant in the case of free goods, such as lower quality, lower variety or reduced innovation. Another challenge posed by the application of the SSNIP test is that it usually relates to a single market while free products are frequently bundled with other products or subsidized by the opposing side of a two-sided market.

Furthermore, when the alleged abuse of dominance occurs regarding a paying side that is interlinked with a non-paying side, it may still be required to define the relevant market for the non-paying side in case of multilateral indirect network effects. It is often difficult to determine whether the interactions between various user groups represents a single product or multiple ones for which the test should be conducted.

In my opinion, a SSNIP test cannot be performed when defining the market for a zero-priced good or service. Due to the inability to rely on the SSNIP test or any other price-centred methods, it is often possible to define the relevant market primarily using qualitative indirect evidence. Alternative techniques for the SSNIP test have been designed, which rely on a nominal change in quality or cost.

3.5.2. The SSNIC test

Altering the price-oriented SSNIP into a cost-oriented test, would mean that the purpose of the test would be to ascertain whether the concerned platform is able to impose a small but significant non-transitory increase in cost (SSNIC) for users in a profitable manner. The costs for users in the case of zero-priced markets are split into information and attention costs.[99] [100]

However, asking users to evaluate their behaviour considering increases in price is very different than asking them to do the same regarding an increase in information or attention costs. Users are much less able to comprehend information and attention costs, therefore their value among users may differ greatly.[101]

Information costs can further translate into sensitive and less sensitive personal data. The number of ads shown, the duration of the display, the size of each ad, etc. can all be translated into attention costs.[102]

Mandrescu[103] also points out that *"an increase in attention costs in practice it's not a suitable benchmark because attention costs are not an inherent aspect of the business models of all online platforms. While some online platforms rely on advertisements, others see it as a secondary source of revenue and some do not use it at all*."

Lastly, due to the legal framework, it may not be adequate to consider information costs for the sole aim of maximizing profit without any product or service improvement. The GDPR mandates (Art. 5) that personal data is obtained only to the extent that it is strictly necessary for

[98] Gal, M. and Rubinfeld, D. (2016), p. 547.
[99] Newman, J. M. (2015).
[100] Mandrescu, D. (2018), (unpaged).
[101] Ibid.
[102] Ibid.
[103] Ibid.

the purposes for which it is being gathered. It appears that an increase in information costs based on the SSNIC logic might be problematic.[104]

In line with Mandrescu's thought, I consider that the SSNIC test seems unsuitable for application to digital markets.

3.5.3. The SSNDQ test

When the price of a service is zero, Morton[105] et al. advise using a quality adjusted price for each service. The relationship between quality and substitute has been recognized competition law practice, and unlike in the case of information costs, the GDPR does not directly obstruct any changes in a product's quality.

In his paper, Mandrescu[106] explains the SSNDQ test: *"In the context of a quality-oriented test, the core question will concern the effect of a small but significant non transitory decrease in quality (SSNDQ), which is comparable to an increase of price from an economic lens. The quality of a product has long been recognized as one of the main criteria in which digital platforms compete, particularly in zero-price markets".*

It is true that users will find it harder to evaluate quality rather than price. Like information or attention costs, choosing the relevant quality for the purpose of the assessment is not as straightforward as a price variation. A vast range of factors might be encapsulated by "quality". In the case of digital platforms, the criteria covered may include privacy, user friendliness, security, etc.[107]

I would follow here the view stated by Mandrescu[108], in which he argues that a methodology for assessing quality in each case must first be established. He points out that "*(...) when simulating a decrease of quality on one side of the platform it is important to consider what is the consequence of such reduced demand with respect to the other side(s) of the platform.*"

However, it should also be mentioned that in the digital economy, developing a certain product or service quality is frequently much more costly than offering it to users after it has been created. As a result, in these situations, the test may not be an accurate reflection of the actual scenario, because a platform won't be incentivized to reduce quality if doing so won't significantly increase the income.[109]

Given the above mentioned, it can be said that the SSNDQ is sound from a substantive point of view, but its application demands the creation of an analytical and legal framework that governs the selection of the pertinent qualities to be tested in each situation. In the absence of such a framework, the adjustments required for zero-priced markets may increase the already existing legal uncertainty and criticism around the SSNIP test.[110]

[104] Ibid.
[105] Morton, F. et al. (2019), p. 75.
[106] Mandrescu, D. (2018), (unpaged).
[107] Ibid.
[108] Ibid.
[109] Ibid.
[110] Ibid.

The implementation of the SSNDQ test may be a positive step[111] in the process of adapting the current competition law to digital markets, despite the difficulties that have been highlighted.

IV. Remedies

Remedies are corrective or preventive measures imposed by competent authorities in order to create, maintain and restore the competitive conditions in a given market.

Remedies can be categorized as either behavioural or structural. As Maier-Rigaud and Loertscher[112] wrote, *"Structural remedies directly influence the competitive structure of the market in order to maintain or improve the conditions for competition. Behavioural remedies seek to address competition concerns by requiring certain conduct from the undertakings concerned."*

Both behavioural and structural cures may fall under the *ex-ante* or *ex-post* category. *Ex-ante* remedies are adopted in order to prevent a market failure or anti-competitive situation from occurring before it actually does. *Ex-post* remedies are used to improve the competitive environment in a market or to correct an anti-competitive situation.[113]

For the purposes of this Thesis, competition law remedies will be divided into two groups: structural and behavioural. Regarding behavioural remedies, this work will divide them into remedies regarding abusive practices and remedies regarding agreements and concerted practices. This Thesis will chiefly focus on behavioural and structural remedies applied to potentially abusive practices. I will then mention two remedies based on market studies and, lastly, will also bring into discussion other areas of public intervention within the scope of competition law and outside the scope of competition law. Due to limitations on the Thesis' length some of these remedies will not be subject to a comprehensive analysis.

4.1. Behavioural remedies

4.1.1. Behavioural remedies regarding abusive practices

4.1.1.1. Interoperability measures

Kerber and Schweitzer[114] define interoperability as "*the ability of a system, product or service to communicate and function with other (technically different) systems, products or services".*

Horizontal interoperability refers to the ability of digital services to communicate with rival services. Vertical interoperability refers to the ability of digital services to incorporate data, content or functionality from an upstream provider.

To some extent, this remedy requires a standard format for data storage to enable platforms to exchange data and mutually use the information. Some platforms may need to modify a part of their design in order to be interoperable. Because of this, the adoption of interoperability measures may hinder innovation by requiring some level of standardization between market

[111] There are authors that go even beyond and propose different approaches. See Prado, Tiago S. (2021).
[112] Maier-Rigaud, F. and Loertscher, B. (2020), p. 3.
[113] OECD (2019), p. 19.
[114] Kerber, W. and Schweitzer H. (2017), p. 40.

players.[115] As an example of an interoperability measure, just recently, the EU Parliament approved a common charging cable from 2024[116].

Jenny[117] explains some of the problems regarding the lack of interoperability: *"The lack of horizontal interoperability (for example, the impossibility of a messaging service to send messages to services run by other companies) may lock in consumers with a platform as they will lose the network. The lack of vertical interoperability can prevent users from combining different complementary products from different platforms or allow an ecosystem to prevent the access to a platform by a third-party provider competing with a service offered by the core platform of the ecosystem. Interoperability measures could help prevent a market from tipping into monopoly. The use of uniform standards may limit the possibilities of firms to develop their own specific products. This may limit innovation and product differentiation to the detriment of consumers*."

In some markets, users' behavioural biases such as the tendency to stick to default options, might increase entry barriers. Denying interoperability to competitors can constitute an abuse of dominance under Art. 102 TFEU.[118]

However, evidence suggest that compatibility might not be sufficient to allow competitors to enter the market. Since users are unlikely to have access to a short-term alternative service, interoperability may not have much of an influence in highly competitive digital markets.[119] In the Microsoft case[120], the EC pointed out that Microsoft's market share had continued to grow since the EC's decision setting interoperability measures.

In any event, interoperability measures and proper enforcement can be an adequate tool to prevent the use of barriers to entry. In my opinion, it does not entail a huge burden of action on platforms. Adapting their systems is most likely to be less costly than a huge fine or a temporary shutdown. Multi-homing is incentivized and, most importantly, users will be the ones that will benefit the most.

I believe this is, despite all the difficulties to apply, the most logical remedy to apply to digital platforms.

4.1.1.2. Algorithm sharing

This remedy consists of an obligation to share algorithms trained when they were designed based on anticompetitive collection of data. It implies using the fruits of anticompetitive conduct for the sake of some social benefit.

I follow the work of Gal and Petit[121], regarding this topic.

Algorithm sharing may have some advantages such as:[122]

- Being non-rivalrous;

[115] Yoo, C. S. (2012), p. 1155.
[116] "EU Parliament approves common charging cable from 2024", BBC News (2022).
[117] Jenny, F. (2021), p. 46.
[118] CERRE (2022), p. 36.
[119] ACCC (2019), p. 11.
[120] Microsoft Corp. v. Commission of the European Communities. Case T-201/04 (2007).
[121] Gal, M. and Petit, N. (2021), p. 12.
[122] Ibid, p. 17.

- The ability to use the shared algorithm almost instantly, as long as technological conditions are verified;
- Platforms enjoying equal access to state-of-the-art technology. The remedy restores a level playing field by eliminating unlawful advantages;
- Doesn't require continual supervision. It is a one-time remedy.

For instance, Facebook was capable of improving its facial recognition algorithm by using a collection of photographs that were uploaded to its platform to its system.[123] The same algorithm could be used for other devices such as security cameras.[124]

However, determining how much of the algorithm's competitive advantage was due to lawful conduct and if this advantage can be distinguished from gains unlawfully achieved is a challenging subject.[125]

An algorithm frequently learns from data that was collected both legally and illegally. If there is no technologically feasible way to confine the remedy to sharing the incremental learning that resulted from infringement, the question of whether there is sufficient justification to impose a more expansive duty to share emerges. In cases when the monopolist sustained its position by engaging in seriously detrimental long-term and systemic anticompetitive behaviour, sharing may be appropriate.[126]

Gal and Petit[127] point out that *"A rule which prevented courts from mandating sharing in all circumstances where data was combined, would make it easy for monopolists to avoid such sharing by simply adding a small amount of legally obtained data to their dataset".*

Sharing the algorithm and documenting its functions might also be technologically difficult.

Competitors' use of a similar algorithm may lead in express or tacit collusion. Coordination will be more difficult to achieve, for instance, if the algorithm merely efficiently performs the same function for all competitors but the data inputted by competitors is different. The sharing of the algorithm should be done in a way that minimizes direct interaction between competitors, relying instead on third-party intermediaries, and assuring that sharing is a one-time event in order to lower the potential of anticompetitive coordination.[128]

Algorithms are considered know-how or trade secrets as well. A duty of disclosure might reduce firms' incentives to invest.[129] One last downside of a mandatory sharing of algorithms is the risk that sharing will infringe data protection laws and, eventually, the AI Act.

Though, "unteaching" the algorithm doesn't seem to be an option, in my perspective. In line with Gal and Petit[130], unteaching the algorithm might not only be costly and time-consuming, but it might also have a negative impact on the internal balance with other elements of the

[123] "Facebook Creates Software That Matches Faces Almost as Well as You Do", MIT Technology Review (2014).
[124] Gal, M. and Petit, N. (2021), p. 14-15.
[125] Ibid.
[126] Ibid, p. 20.
[127] Ibid.
[128] Ibid.
[129] Ibid, p. 19.
[130] Ibid, p. 22.

algorithm's decision-making process. This could potentially harm the monopolist's business model and restrict his ability to benefit from legally obtained comparative advantages.

Additionally, unteaching the algorithm places ongoing technological duties on the antitrust offender that may be difficult for an agency or court to monitor.

If the monopolist's products and services already integrate such learning, simply unteaching the algorithm might still allow him to reap some of the benefits of his anticompetitive behaviour.[131]

Finally, unteaching the algorithm can undermine consumer welfare by removing technology from the market. In comparison, an imposition to share an algorithm is efficient because it makes everyone better off, without making anyone worse off (technologically wise).[132]

Consequently, I agree with Gal and Petit's[133] view that *"From a theoretical point of view, sharing the algorithm is in line with the traditional competition approach, which may mandate the infringer to share the comparative advantages of his anti-competitive act, in order to level the playing field. Accordingly, it can be argued that it is not a radical remedy but the next logical step in antitrust remedial implementation"*.

4.1.1.3. Data sharing (mentioned above in 3.4.3. (iii))
Regarding data sharing, it is useful to read all the above mentioned in 3.4.3. (iii). However, in this section only an explanation of data sharing disadvantages compared to algorithm sharing will be done.
There may be technological difficulties involved in data portability and interoperability. It might take rivals time to study the data and organize it.[134]

Platforms will need to determine the crucial information in the transferred data and incorporate the new into their datasets. The challenge is to quickly integrate data that are not similar at a reasonable cost.[135]

Sharing of data might be prohibited by other laws, namely data protection laws. Data protection considerations will most likely prevail over competition considerations. Data and algorithm sharing can, although, be combined.[136]

As Gal and Petit, I consider that the application of algorithm sharing may be simpler and more effective than data sharing.

4.1.2. Behavioural remedies regarding agreements and concerted practices

The term "collusion" typically refers to any coordination or agreement among business rivals with the goal of raising profits above the non-cooperative equilibrium, resulting in a deadweight loss. In other words, collusion is a deliberate strategy used by rival businesses to maximize profits at the expense of consumers.

In digital markets, besides the "traditional" worries with cooperative agreements (Art.101 TFUE), the literature often mentions the risk that algorithms may work as a facilitating factor

[131] Ibid, p. 23.
[132] Ibid.
[133] Ibid, p. 23-24.
[134] Ibid, p. 22.
[135] Ibid.
[136] Ibid, p. 23.

for collusion and may enable new forms of coordination that were not observed or even possible before. This is referred to as "algorithmic collusion".[137]

More and more, prices are being set by algorithms rather than by humans. One major concern is that sophisticated, self-learning pricing algorithms may find out how to guarantee high prices on their own. The outcome would be the same as in a price cartel, but there would be no explicit communication or agreement necessary to prove a violation of competition law[138]. A recent empirical study[139] indicate that the use of self-learning pricing algorithms may indeed harm competition.

While so far no one has brought an antitrust case against autonomously colluding algorithms, antitrust agencies are discussing the problem seriously.[140]

As above said, algorithm collusion fits the scope of concerted practices and this Thesis will mostly focus on behavioural and structural remedies regarding abusive practices. Nevertheless, I suggest reading the work of Ezrachi and Stucke (2015) (2016) (2020), Mehra (2016), Calvano et al (2019), Normann and Sternber (2021) and Hansen et al (2020), as well as the ones mentioned in the footnotes.

4.2. Structural remedies

4.2.1. Breaking up platforms

US Senator Elizabeth Warren's proposal[141] states that there is a long tradition of breaking up US companies. The reality, however, is that breakup remedies are rare. The structural separation of large corporations into smaller, independent entities has only been used in few instances like the U.S. government's antitrust cases against Standard Oil[142] and AT&T[143].

The few times that these actions have been taken concerned companies with significantly different economic structures than digital platforms. Applying structural remedies to digital platforms will demand substantially more investigation given the features of digital markets.

Warren's proposal sets forth two steps to break platforms:

- First, by passing legislation that requires large tech platforms to be designated as "Platform Utilities" and broken apart from any participant on that platform.
- Second step would be to appoint regulators committed to reverse illegal and anti-competitive tech mergers.

Regarding the application of the first step, *"Companies with an annual global revenue of $25 billion or more and that offer to the public an online marketplace, an exchange, or a platform for connecting third parties would be designated as "platform utilities." These companies would be prohibited from owning both the platform utility and any participants on that*

[137] OECD (2017), p. 19.
[138] Klein, T. (2019), p. 2.
[139] Assad, S. et al. (2021).
[140] Calvano, E. et al. (2019), p. 2.
[141] "Warren Calls for Breakup of Tech Companies Like Amazon, Facebook", Bloomberg (2019).
[142] Standard Oil Co. of New Jersey v. United States, 221 U.S. 1 (1910).
[143] United States v. American Tel. and Tel. Co., 552 F. Supp. 131 (D.D.C. 1983).

platform. Platform utilities would not be allowed to transfer or share data with third parties, unless instructed – in order to restore competition through data sharing".[144] *"For smaller companies (those with annual global revenue of between $90 million and $25 billion), their platform utilities would have to meet the standards of fair, reasonable, and non-discriminatory dealing with users, but would not be required to structurally separate from any participant on the platform"*.[145]

As for the second step, unwinding mergers like Facebook/WhatsApp[146] would promote healthy competition, which would put pressure on big tech companies to pay more attention to user concerns, including privacy.[147]

On a more recent speech, Warren[148] draws attention to additional aspects of the break ups: *"Think about two fast food chains in a region. They can merge, and keep their prices and products the same. As far as the consumer is concerned, nothing has changed for their wallet or their taste buds. Antitrust agencies, which typically only look at consumer welfare when reviewing mergers, will likely approve it. The two chains no longer have to compete with each other for employees by offering superior wages, benefits, and working conditions. Studies have shown that as markets become more concentrated, wages stagnate."*

The bill would require authorities to take into account factors like the impact on the labour market in addition to the impact on users.

One last argument Warren uses to defend break ups is that "*structural change, where possible, minimizes regulation and maximizes the benefits of a functioning market".* To paraphrase Judge Learned Hand, *"Dissolution is not a penalty, but a remedy. (...) Does the market need dissolution for its protection?*".[149] Because such solutions don't require government intervention, competition authorities often prefer dissolution. There is no longer a need for supervision after a monopoly has been dissolved. As mentioned by First, *"It is easier to break up a shoe manufacturing company than to supervise its contracts.*"[150]

Opposing views raise valid arguments. Simply divesting Instagram from Facebook might be unlikely to work. "*Everyone wants to be on the same site as their friends, so a division with no links to Facebook would likely lose its users quickly back to Facebook"*.[151] Interoperability obligations might be needed to fix this issue.

Breaking up firms might also lead to some market instability, since the divestiture will most likely lead to a loss of value of the firms, therefore its shareholders might lose some financial power.

Divestiture of firms is often something political. In this line, Thomas Vinje said: "*I don't believe the EU would risk breaking down [the alliance with the US] by threatening to break up*

[144] Moss, D. L. (2019), p. 3-4.
[145] Fox E. M. and Crane D. A. (2020), p. 798.
[146] See above Note 35.
[147] Fox E. M. and Crane D. A. (2020), p. 799.
[148] "Elizabeth Warren's plan to break up Big Everything", Vox (2022).
[149] First, H. (2008), p. 30.
[150] Ibid, p. 17.
[151] "Why 'Breaking Up' Big Tech Probably Won't Work", Yale Insights (2019).

American icons".[152] Lobbying is also a well-known phenomenon[153] in the digital markets. The pressure exerted by resourceful digital platforms on EU lawmakers might be a powerful force responsible for EU inaction or delays.

An assessment of costs and benefits of the breaking up is key. Moss[154] raises important final questions to be answered before breaking up platforms: *"How are post-restructured markets likely to evolve and competitive dynamics shift in response to breakups? How does the imposition of restructuring and regulatory requirements affect rivals that may be in a position to challenge larger incumbent firms like Google, Amazon, and Facebook? How would a new law potentially affect the playing field by creating a mixed regime of permissible integration, mandated structural separation, competition, and regulation? Answers to these questions are essential before breakup proposals move forward*."

4.2.2. Temporary shutdowns

Ordering the temporary shutdown of an infringer's digital service can be deemed as extreme and competitively counterintuitive. This paradox is solved if a short-term decrease in rivalry serves to further competition goals and if it provides a useful instrument for restoring long-term competition.[155]

There have been internet shutdowns for purposes of political censorship, anti-piracy, IP protection, police and law enforcement. Their instant impact is to force users to migrate to an alternative service, promoting a competitive entry and multi-homing.

In addition to shutdowns, measures to facilitate user migration should be employed (e.g., data portability or interoperability requirements). By announcing the temporary shutdown ahead of time, courts or authorities can give competitors time to prepare to provide such services.[156]

All users need not be affected by the shutdown. It should only last as long as it's required to expose users to competing services and allow such services to overcome entry barriers.[157]

Shutdowns also inflict costs on employees, suppliers, and business customers. If a platform is inactive will their employees be paid?

The costs of shutdowns may be better limited by restricting the scope of shutdowns to specific user interfaces (such as apps), platforms (such as computers), and locations (e.g., Facebook being only shutdown in Germany. An identical approach to regulatory experimentalism, which could, nevertheless, raises issues regarding the criteria to select a location and the harm caused to users affected).[158]

Moreover, I believe the temporary shutdowns will just be a topic of discussion among the public, creating a wave of popularity in favour of dominant platforms. The announcement of the "comeback" of a platform previously shutdown will, in my opinion, create an enormous

[152] "EU warns that it may break up Big Tech companies" – Financial Times (2020).
[153] See Corporate Europe Observatory and LobbyControl e.V. (2021).
[154] Moss, D. L. (2019), p. 8.
[155] Gal, M. and Petit, N. (2021), p. 31.
[156] Ibid, p. 33.
[157] Ibid.
[158] Ibid, p. 34.

hype around the platform. Lastly, during the time the platform is inactive, heavy time-consuming R&D investments can be made in order to perpetuate the dominant market position.

These issues require the remedy to be carefully crafted, including additional interoperable remedies. Long-term advantages should outweigh the severity of any short-term negative effects. Shutdowns shouldn't be ordered when there are severe risks that can't be cost-effectively overcome.[159]

Breaking up platforms and temporary shutdowns are perceived as radical remedies. But Gal and Petit[160] leave us with a final thought: *"If a monopoly outcome is to be expected, should antitrust agencies and courts promote the adoption of radical remedies in the first place? Even if re-tipping recurs, and a new monopoly replaces an incumbent monopoly, competition for the market may enable a more efficient firm to serve the market. A series of sequential efficient monopolies may, in some circumstances, be preferred to an incumbent monopolist"*.

4.2.3. Merger control

Acquisitions have been a common and important practice in the world of digital platforms, with records of numerous mergers in the past.

The US and European competition authorities have not yet blocked any big tech acquisition, and the question arises whether the existing merger rules are fit for the digital era.

Dominant platforms often purchase small platforms with a quickly growing user base, before authorities can properly assess its impact in a merger control assessment. These are the so-called "killer acquisitions".

Some refer that a reform reverting the burden of proof is needed. The OECD[161] suggests that the acquirer should be the one required to demonstrate the pro-competitiveness of its acquisition or the lack of competitive harm, rather than requiring competition authorities to demonstrate that the merger will have a negative impact on the market before they block the acquisition or impose remedies.

Some authors like Colomo[162], go beyond and affirm that horizontal mergers automatically lead to market concentration and a reduction of competition. Accordingly, it would not be unreasonable, in the absence of efficiency gains, to prohibit horizontal mergers. Mergers involving dominant digital platforms should be considered *prima facie* unlawful. With effect, it would be the acquiring party the one responsible to prove evidence of competitive gains. The rational here is that the acquiring platform is the party with access to the relevant information.

Courts already clarified that a conduct may be considered *prima facie* unlawful even when it is likely to produce competitive gains. Art. 101 applies the same logic.[163]

I highlight Parker et al.[164] work. They set out a four-step proposal that incorporates (1) a new *ex-ante* regulatory framework, (2) an updating of the conditions under which the notification of mergers should be compulsory and the burden of proof should be reversed, (3) differential

[159] Ibid.
[160] Ibid, p. 38.
[161] OECD (2021), p. 2.
[162] Colomo, P. I. (2020), p. 9.
[163] Ibid, p. 13.
[164] Parker, G. et al. (2021), p. 1-2.

regulatory priorities in investigating horizontal versus vertical acquisitions, and (4) an updating of competition enforcement tools to increase visibility of market data and trends.

Their proposal is designed to (1) improve the flow of information, (2) adjust the notification threshold and the burden of proof in merger cases, (3) better assess the dynamic effects of mergers, and (4) suggest updates to merger policy tools.[165]

Even though I recognise the high importance of merger control in digital markets, for the purposes of this Thesis, a sufficient and comprehensive analysis of the topic would open plenty of discussions, making it not possible to be conducted here. For this purpose, I suggest the work of Bourreau and de Streel (2019), Pérez de Lamo (2021), Zhou (2021) and Martins (2022).

4.3. Remedies based on market studies

4.3.1. Surveys

Defining the market can be quite difficult, especially in the case of free goods. It may be preferable to concentrate on the provision of the specific service and the value they create for the digital ecosystem rather than studying markets. By doing this, we can identify substitutable services more precisely and assess the level of competition for each individual service. A novel methodology is presented by Brynjolfsson and Collis[166] on how to assess the substitutability of free products at the service level in a way that is incentive compatible. They run massive online choice experiments using digital surveys in order to study the preferences of thousands of users.[167]

Such an experiment can easily be extended by assessing what would have been the choice of a user if one of the platforms would not have been available. In such case, the degree of platform substitutability can be determined by the choices made by users.[168] Additionally, we can obtain a more complete picture of the competitive pressure for the provision of that service if this approach is combined with an assessment of the substitutability on the other side of the market (e.g., advertising), which typically exhibits positive prices and where it is therefore simpler to apply standard antitrust methodology.

4.3.2. Regulatory sandboxes

A promising alternative to deal with the need to regulate could be offered by regulatory sandboxes – regulatory experimentalism. The development of sandboxes derives mainly from the fintech sector.[169]

In these "protected regulatory spaces", innovative financial products and services are tested and developed before they are sold on the market. Importantly, these testing activities involve real market players and consumers, under close scrutiny from the authorities.[170]

The purpose of regulatory sandboxes is to benefit from prior live testing of the new rules in a controlled environment. Regulatory experimentalism's core concept is that rules might fail,

[165] Ibid, p. 2.
[166] Brynjolfsson, E. and Collis, A. (2019).
[167] Parker, G. et al. (2020), p. 21.
[168] Ibid.
[169] See IPOL (2020).
[170] Poncibò, C. and Zoboli, L. (2020), p. 2.

hence it is preferable to use a trial-and-error approach that takes into account a quickly changing environment where authorities cannot foresee all underlying intricacies.[171]

The key elements of a sandbox are its predetermined duration (three to six months); the number of customers (large enough to generate statistically relevant information);[172] and the need for disclosure (customers should be thoroughly informed about the test, the compensation available and other necessary aspects).[173]

A regulatory sandbox lowers the cost of innovation and entry barriers, enabling the collection of crucial insights prior to deciding if further regulatory action is needed.

While most jurisdictions offer sandboxes free of charge, there are costs associated with running tests. However, the obtained results lower the expenses of legal fees, which can be just as expensive as or even higher than the price of sandbox testing.[174]

Further, participating platforms should clearly state how users will be treated once they exit the testing environment and should have a plan in place for compensation or redress if users experience losses while the product is being tested.[175]

What is clear is that a case-by-case evaluation of each regulatory sandbox is needed and that it is vital to consider how activating regulatory sandboxes will affect the level playing field of entry barriers.[176] A regulatory sandbox can be deemed as a form of "government-granted privilege", which favors those admitted to the detriment of the non-admitted competitors. If this is the case, not only would it hurt non-privileged platforms but ultimately users as well.[177]

For instance, a firm might be granted the leeway to test a product with accelerated approval and fewer licensing requirements than other firms, who may have to invest more time, money and effort obtaining a traditional license. In contrast to the firms excluded from the sandbox, the preferred firm would be able to invest the unspent resources in R&D, improved collateral services, and marketing. Here lies the "sandbox paradox."[178]

Nevertheless, this should not be seen as proving that regulatory sandboxes are intrinsically flawed, as they can have beneficial effects if well implemented.

Pocibò and Zoboli suggest combining sandboxes with other remedies, namely an obligation of interoperability or data sharing to all competitors during the experiment period. This would include competitors not admitted to the sandbox.

However, the impact of regulatory sandboxes remains minimal. There is little proof that sandboxes have led to any official regulatory modernization or reform. This does not mean that the impact of sandboxes and anticipatory competition policy in digital markets is not worthy of thorough exploration.[179]

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[171] Poncibò, C. and Zoboli, L. (2022), p. 2.
[172] Poncibò, C. and Zoboli, L. (2020), p. 13.
[173] M. Fenwick et al. (2017), p. 593.
[174] Poncibò, C. and Zoboli, L. (2022), p. 30.
[175] Poncibò, C. and Zoboli, L. (2020), p. 8.
[176] Poncibò, C. and Zoboli, L. (2022), p. 30.
[177] See Allen H. J., (2020).
[178] Poncibò,C. & Zoboli, L. (2022), p. 5.
[179] Ibid, p. 32.

4.4. Other areas of public intervention

4.4.1. Public areas of intervention within the scope of competition law

4.4.1.1. Sanctioning policy: fines

Fines represent the principal tool in the EC's enforcement of EU competition law.

It should be noted that Google paid a total of €8.2 billion in fines to the EU. Even if such fines create a sufficient deterrent effect, imposing fines does not necessarily restore competition if previous conduct resulted in high entry or expansion barriers.

In his article, First[180] stressed that the threat of large daily fines was not sufficient to produce timely compliance. It took Microsoft 3 ½ years before the EC found it had complied.

Other relevant topic is how to calculate fines in the most adequate way. In the Microsoft case, First[181] questions *"what is the harm that Microsoft caused? Once we get beyond the possible overcharge for Windows how would we measure the damage from lost innovation?"*.

The question of whether the penalties levied by the EC are severe enough is still up for debate. This raises the issue of whether the EC should use additional sanctions, like criminal penalties.[182]

US authorities often criticize other jurisdictions for imposing remedies the US considers interventionist. In the Microsoft case, First[183] noted that the Justice Department asserted that *"Sound antitrust policy must avoid chilling innovation and competition even by "dominant" companies".* The Assistant Attorney General in charge of the Antitrust Division said: *"We are concerned that the standard applied to unilateral conduct by the CFI, rather than helping consumers, may have the unfortunate consequence of harming consumers by chilling innovation and discouraging competition"*.

Despite the above mentioned, I consider fines an important remedy and, perhaps, the one with the easiest application. The problem has been the amount of fines. It should be higher. Not only to reduce a dominant player's market power, but also to send a warning to other platforms. Google was declared in violation of abuse of dominance three times in recent years (Google Shopping[184], Google Android[185] and Google Search[186]) and yet Google's dominant position was hardly touched.[187]

However, the General Court of Justice just confirmed the biggest fine in history in the Google Android case[188]. The path might be changing. The proposed fines in the DMA will hopefully contribute to solve this issue (Art. 30 and 31).

[180] First, H. (2008), p. 26.
[181] Ibid, p. 25-26.
[182] Gerardin D. and Henry D. (2005), p. 3.
[183] First, H. (2008), p. 20.
[184] Case AT .39740, Commission Decision C (2017) 4444 final.
[185] Case AT .40099, Commission Decision C (2018) 4761 final.
[186] Case AT .40411, Commission Decision C (2019) 2173 final.
[187] Gal, M. and Petit, N. (2020), p. 9.
[188] "Google Android: a maior coima de sempre é confirmada pelo Tribunal Geral", Sérvulo (2022).

4.4.1.2. Subsidizing competitors and state aid

Competition is distorted by subsidies. Government subsidies often have a bad reputation, in line with protectionism. Nonetheless, when markets undersupply essential goods, subsidies are accepted. By bringing the market closer to what it would have been without the anticompetitive behavior, subsidies can be used to restore competition.[189]

I support Gal and Petit's[190] work regarding subsidizing competitors. There are clear advantages to subsidizing a supplier of a substitute good or service. But even though it introduces direct competition to the market, this remedy has clear limitations. It is costly to effectively compete with a digital monopoly. France and Germany invested €199 million in Quaero, a search engine, which aimed at creating a European rival to Google – an attempt which failed.[191] Microsoft spent many years and billions of dollars developing its search engine, Bing. It even created a rewards program[192] that paid users for Bing searches. In most markets today, Bing remains far behind[193] Google Search.

Any subsidy award involves the exercise of discretion, and the costs of getting it wrong are a net waste of public funds. Subsidization of a firm should therefore only be used in limited cases where (i) market self-correction cannot be expected in the short term; (ii) there are clear and significant benefits to its implementation; and (iii) no other less-interventionist remedy can achieve equivalent results.[194]

It isn't easy to decide which company to subsidize. The predicted success of the chosen firm in re-establishing competition should be the main criterion for the choice. As a rule, the subsidized firm must have the organizational capabilities and resources needed to meet all or most of the demand for commoditized or differentiated services that it will replace. The decision maker can auction the role to solicit proposals, but difficulties might arise in evaluating a firm's actual chances of success.[195]

Gal and Petit suggest a variation which consists in indirectly subsidizing competitors by awarding vouchers to consumers. When users contract with the incumbent's rivals, the vouchers can be used. In order to strengthen incentives for quick entry or market expansion, vouchers would include an expiration date. One of this option's main advantage is that the market will decide which competitor needs to be subsidized.

While this may be successful in some digital markets, the effectiveness of vouchers in multi-sided markets with free goods/services is less certain. A voucher to use a different platform won't be attractive unless it grants money back.[196]

This variation certainly has advantages, but I would criticize the fact that the vouchers do not ensure that a firm will be substantially helped. The proposal refers the vouchers will be bought from competitors of the incumbent; therefore, the subsidy will not be channelled to a single firm, leaving it for users to decide which service they'll use. Moreover, some users might, for

[189] Gal, M. and Petit, N. (2020), p. 24.
[190] Gal, and Petit, N. (2021), p. 26.
[191] "The perils of project mania", The Economist (2006).
[192] "Microsoft is Paying More People to Use its Bing Search Engine", SEJ (2017).
[193] "Search Engine Market Share Worldwide" (2022).
[194] Gal, M. and Petit, N. (2021), p. 28.
[195] Ibid.
[196] Ibid, p. 28-29.

many reasons, not even make use of the voucher. This entails losing an opportunity to try a new product, making it harder for the firm to increase its brand exposure/loyalty. I fear that this suggestion may result in a substantial government investment that leads to no significant change in the market.

The higher the barriers to expansion, the higher the subsidy. The antitrust decision maker may lack a standard for determining the costs. For instance, the bidder who offers to supply a good at the lowest price per unit may win the subsidy. It reduces the chance of decision-makers making poor decisions.[197]

Other remedies might be necessary for the subsidized firm to succeed. Most importantly, requirements for data portability and interoperability can be crucial. When this is the case, the decision-maker should consider including such remedies, but only after carefully weighing the costs of designing and implementing remedies.[198]

Finally, a last critic by Gal and Petit[199] should be considered: *"by reducing the ex-post ability of a monopolist to enjoy supra-competitive profits, the remedy harms the monopolist's and other firms' ex-ante incentives to innovate. The remedy might overreach, by going beyond restoring lost competition. In some case, the remedy chills ex-ante incentives to invest. Firms in digital markets might assume they will not be able to extract profits from lawfully acquired monopoly positions. Moreover, firms might have an incentive to lose the ex-ante rivalry game, in order to secure the ex-post award of public resources in the long-run subsidy game"*.

4.4.2. Public areas of intervention outside the scope of competition law

4.4.2.1 Tax policy: higher taxation on digital platforms

The rise of tech giants generates significant amounts of value added. These platforms have a worldwide userbase, making it harder to determine the jurisdiction where value is created. This also increases the risk of double taxation.

Two-sided digital platforms frequently receive income streams from the two sides that are subject to different taxes.[200]

Koethenbuerger[201] explains that *"Thus, tax avoidance takes the form of shifting revenues from the more heavily taxed side to the less heavily taxed side of the platform via quantity increases on the more heavily taxed side. Platforms avoid paying taxes in one country by shifting profits to other low-tax country*".

To address these concerns, the OECD[202] has been hosting negotiations to adapt the international tax system. The negotiated framework is expected to be effective by the beginning of 2023.

The implemented digital taxes in different countries led to country-wide differences. Bunn and Asen[203] give an example: *"(…) while Austria and Hungary only tax revenues from online advertising, France's tax base includes revenues from the provision of a digital interface,*

[197] Ibid, p. 29.
[198] Ibid.
[199] Ibid.
[200] Koethenbuerger, M. (2020), p. 8.
[201] Ibid.
[202] OECD/G20 Base Erosion and Profit Shifting Project (2021).
[203] "What European OECD Countries Are Doing about Digital Services Taxes", Tax Foundation (2021).

targeted advertising, and the transmission of data collected about users for ad purposes. The tax rates vary from 1.5% in Poland to 7.5% in Hungary and Turkey".

Whilst the EC fully supports the work of the OECD, there is a recognition that progress at an international level will be complicated and, therefore, the EC is looking to implement measures as well.[204]

At the EU level, it must be stressed that tax policy is a MS competence, while the EU only has limited competences. However, two proposals have been made: the "Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence"[205] and the "Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services".[206]

As an example, the first proposal draws a digital significant presence definition. MS would be able to tax profits of a digital business which are generated in their territory even in the absence of a physical presence.[207] A business will be considered to have "a significant digital presence" if (besides carrying a supply of digital services through a digital interface) one or more of the following criteria are met:

- Total revenues obtained from supplies of those digital services to users located in that MS in a tax period exceed €7m.
- The number of users of those digital services in the MS exceed 100,000, or;
- The number of business contracts for supply of any such digital services concluded in that period by users in that MS exceeds 3000.

These provisions are especially designed to tackle large platforms. From my perspective, a higher taxation is an adequate tool to provide MS with an increase of revenue. MS can use the obtained resources to invest in competition measures, such as subsidizing competitors or hiring more experts to conduct market studies. A higher tax burden also reduces the financial strength and market power of the targeted players.

Overall, I believe one could argue that this approach provides legal certainty to digital platforms and NCA. It additionally tackles double taxation. The ideal scenario would be to reach an international consensus regarding digital taxation, but that seems incredibly difficult and unlikely. Nevertheless, a European framework would already be a win for the citizens and businesses in the EU.

Lastly, it is a fact that companies always found ways to circumvent tax provisions. Aggressive tax planning, tax avoidance and tax evasion will continue to be a threat. The success of these legislative pieces might depend on the inability of big tech companies to use these strategies.

[204] "EU Commission's proposals for fair taxation of the digital economy", Simmons-Simmons (2018).
[205] Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence (2018).
[206] Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services (2018).
[207] See above Note 204.

V. Regulatory approaches from the EU: The Digital Services Act and the Digital Markets Act

5.1. The Digital Services Act (DSA): key aspects and differences

The DSA applies to all "intermediary services," while the scope of the DMA is limited to "core platform services" offered by "gatekeepers".[208] The Act regulates the obligations of digital services that act as intermediaries in their role of connecting consumers with goods, services, and content.

The DSA establishes a robust transparency and accountability framework for digital platforms, helps protecting users and fundamental rights online, and provides a uniform framework in the EU.[209]

The proposal is aware of the potential harm caused by very large online platforms (VLOPs). In order to prevent risks, the DSA includes additional obligations for these platforms (Art. 25).

For the purposes of this Thesis, I will only explain the differences between the DSA and DMA. I will just point out the most interesting provisions of the DSA, which in my opinion are:

- Art. 28 requires VLOPs to undergo a yearly audit at their own expense to ensure compliance with the specific obligations imposed. As Cauffman and Goanta[210] said, requiring VLOPs to carry out risk assessments is adequate since they are the only entities that have full access to the data they collect and register on their users and they are often best placed to know the problems caused and how to remedy them in the most cost-efficient way. The EC wants VLOPs to bear the costs associated, but then a question of independence is present. A reliable framework for "auditing the auditors" is required[211]. The DSA requires the organisations carrying out the audits to be independent from the VLOPs.
- The DSA mandates MS to designate a NCA as a Digital Services Coordinator (DSC), that shall act with independence (Art. 38 and 39). Both the EC and the DSC have the power to conduct on-site inspections, take interviews and statements (Art. 53 and 54).
- The DSA establishes the creation of a European Board for Digital Services tasked with advising the DSC.
- DSCs may impose effective, proportionate and dissuasive penalties according to Art. 42(2) of 6 % of the annual income or turnover of the provider of intermediary services concerned (Art. 42(3)). Platforms may also be sanctioned for submitting incorrect or misleading information, for the failure to reply or to rectify this information, as well as for the failure to submit to on-site inspections. In these cases, penalties shall not exceed 1% of the annual income or turnover (Art. 42(3)).
- Fines imposed by the Art. 59 and 60.

[208] Di Porto, F. et al. (2021), p. 92.
[209] "Questions and Answers: Digital Services Act", European Commission (2022).
[210] Cauffman, C. and Goanta, C. (2021), p. 770-771.
[211] Ibid.

- Lastly, an order may be issued for a VLOPs to disclose certain traders registered with the platform (Art. 22).

Moreover, it is unanimous that the private sector is much better equipped than public authorities to handle large amounts of data. Cauffman and Goanta[212] explain in their work that in order to do this, the DSA suggests in Art. 67 the creation of a "reliable and secure" system for DSCs to share information. Similarly, Art. 45 sets up a new framework for MS cooperation by allowing them to interact with DSCs outside the jurisdiction of establishment in the event that there is a reason to suspect DSA violations that the MS in question would not have jurisdiction over.

I believe that the creation of a supervisory entity of data and the promotion of information sharing systems are positive. We could use the banking system as an example. An entity like the European Banking Authority (EBA), which often conducts market studies, publishes guidelines and promotes debates will certainly be the way to go. The European Board for Digital Services might play this role in the future.

Lastly, to clarify the differences, and before diving into the DMA, this chart might be of use:

Comparison of the DMA and DSA	What will they regulate?	Who is subject to these regulations?	When will the rules take effect?
Digital Markets Act	The DMA is concerned with competition and antitrust issues. It will broaden the range of existing measures by creating *ex-ante* rules that prohibit certain behaviours.	**Gatekeepers providing core platform services (CPS)** Which in practice means only a small number of big tech companies. It targets companies with more than €7.5 billion in annual turnover in each of the last three financial years or its average market capitalization or its equivalent fair market value amounted to at least €75 billion in the last financial year.	Will enter into force as of 1 November 2022 and will start applying as of 2 May 2023.
Digital Services Act	The DSA is concerned with harmful and illegal goods, services, and content online. It will replace the E-Commerce Directive (2000).	**Intermediary services** – Basic intermediary service providers – Hosting service providers – Online platforms, including marketplaces – Very large online platforms (VLOPs), that is, those with at least 45 million average monthly active users.	Will be directly applicable across the EU 20 days after publication in the Official Journal following the final adoption of the text, or from 1 January 2024, whichever is later.

5.2. The Digital Markets Act (DMA)

In December 2020, the EC initiated a legislative process with a proposal for a regulation of the digital markets, an *ex-ante* regulatory system to control the conduct of companies that will be known as "gatekeepers".

The DMA is a supplement to national and EU competition law. It amounts to sectoral regulation in the form of secondary EU law.

[212] Ibid, p. 773.

The Act addresses unfair conduct by gatekeepers that either violate current EU competition laws or that, because to the systematic nature of their actions, cannot always be successfully addressed by these laws. Thus, the DMA will minimize the negative structural effects of these unfair practices *ex-ante* while not restricting the EU's ability to interfere *ex-post* by enforcing existing EU competition laws.

The EC will be the sole enforcer of the Act. This centralized enforcement aligns with the gatekeepers' transnational activity and the DMA's objective to provide a unified framework with legal certainty for platforms in the EU. At the same time, the EC will cooperate with NCA for the application of the Act.

The DMA does not apply to all digital platforms, but only to those qualified as "core platform services" (CPS). Art. 2(2) provides a list of CPS such as search engines, web browsers, etc.

Furthermore, only platforms designated as "gatekeepers" are included in the DMA's scope. Three requirements are listed in Art. 3(1) for a platform to be designated as a gatekeeper and Art. 3(2) offers size-based thresholds for establishing the presumption that a platform satisfies those criteria.[213] The gatekeeper must (i) have a size that impacts the EU internal market; (ii) provide a core platform service which is an important gateway for business users to reach end users; and (iii) enjoy an entrenched and durable position in the market.

Platforms that fulfil the above criteria are presumed to be gatekeepers, but they can rebut the assumption and submit arguments to prove that, despite meeting all the requirements, they shouldn't be designated as gatekeepers.[214]

Additionally, the EC may launch an investigation to assess the specific situation of a given platform and decide to identify the platform as a gatekeeper, even if it does not meet the quantitative thresholds. This can be the case of the EC designating a gatekeeper based on being foreseeable that it will enjoy an entrenched and durable position in the near future.[215]

The DMA establishes a system of prohibitions and multiple positive obligations for gatekeepers ("dos and don'ts") in Art. 5 and 6. Some of them are:

(i) Prohibition on the use and processing, for advertising purposes, of personal data of end users using third-party services that use the gatekeeper's CPS. The consent of the end user under the GDPR circumvents the prohibition (e.g., Facebook cannot combine data obtained from Facebook social media and Facebook marketplace to develop targeted ads, without the consent of the user);

(ii) Prohibition on preventing business user from offering their services to end users on other platforms or their own sales channel at prices or conditions different from those offered on the gatekeeper's online intermediation service;

(iii) Prohibition on restricting users from raising any issue of non-compliance with the relevant Union or national law;

[213] Ibid.
[214] Attention should be paid to market practices. Gatekeepers might soon start breaking up or fragment their services in order not to qualify for the gatekeeper definition.
[215] Petit, N. (2021) criticizes this provision on p. 23.

(iv) Prohibition on requiring business users to also use, offer or interoperate with the gatekeeper's ancillary services (e.g., web browser, search engine, payment services, etc.);

(v) Prohibition on restricting switching: a gatekeeper cannot restrict the ability of its end users to switch between different apps and services that are accessed using the CPS of the gatekeeper;

(vi) Prohibition on making termination conditions disproportionate or difficult to exercise. (e.g., Twitter cannot make it extra difficult for its users to unsubscribe from Twitter).[216]

(vii) Prohibition on applying less favourable general access conditions: a gatekeeper must apply fair, reasonable and non-discriminatory access conditions to its app store, search engine and social networking service for business users (e.g., Apple cannot charge different commission fees to different app developers in its App store without a clear explanation);[217]

(viii) Prohibition on self-preferencing: a gatekeeper cannot treat more favourably, in ranking and related indexing, services offered by the gatekeeper itself than similar services by a third-party. The gatekeeper has to apply fair, transparent and non-discriminatory conditions to the ranking (e.g., Google Shopping: Google cannot treat its own comparison shopping service more favourably than third-party comparison shopping services in the ranking of Google Search results);[218]

(ix) Prohibition on using data of business users to compete against them;

(x) Obligation to provide advertisers, publishers and third parties with information, free of charge, regarding price transparency (e.g., Instagram must provide with information regarding the prices and fees paid by the advertisers, the remuneration received by the publisher and the metrics on which fees and remunerations are calculated);

(xi) Obligation to allow end users to easily un-install pre-installed apps or change default settings that steer them to the products of the gatekeeper (e.g., *"Technologically binding Internet Explorer to Windows (…) both prevented Original Equipment Manufacturers from pre-installing other browsers and deterred consumers from using them"*);[219]

(xii) Obligation to ensure interoperability: a gatekeeper shall allow service and hardware providers, free of charge, interoperability features;

(xiii) Obligation to ensure data portability for end users. (e.g., Snapchat must allow its users to freely move their data generated there to another platform);

Other obligations are applicable, like the one in Art.15.

[216] Ibid.
[217] Ibid.
[218] Moreno Belloso, N. (2022), p.3.
[219] US v. Microsoft Corporation 253 F.3d 34 (D.C.Circ), cert. denied, 534 U.S. 952 (2001).

In order to deal with interoperability issues (mentioned above in 4.1.1.1.), the DMA establishes interoperability obligations with respect to software and hardware in Art. 6(7) and for number-independent interpersonal communications services in Art. 7.

Some basic functionalities have to be made available for interoperability from the entry in to force of the DMA (e.g., text messages between two individual users), more complex ones will be introduced gradually and have to be made available after two years or four years from the moment of designation (e.g., audio and video calls).[220]

It is crucial to emphasize that non-gatekeeper messenger service providers are not obligated to comply with interoperability standards, leaving them free to either take advantage of the interoperability obligations placed on the gatekeeper or maintain their service's independence from the gatekeeper.[221]

However, according to Art.7(9), the gatekeeper can take strictly necessary and proportionate measures to ensure that the integrity, security and privacy of its services are not endangered by the interoperability requirements.

The DMA gives the EC the power to, among other things, request platforms and NCA for information (Art. 21); conduct interviews and take statements (Art. 22); conduct necessary platform inspections (Art. 23); order interim measures against a gatekeeper based on a *prima facie* finding of a violation of Art. 5, 6 or 7 (Art. 24); and take steps to monitor the DMA's effective implementation and compliance (e.g., by appointing external auditors).

Irrespective of Art. 1(5), the DMA offers multiple ways for the MS to be involved, including[222]:

1. General cooperation and coordination: the EC and MS have to cooperate closely and coordinate their enforcement actions (Art. 37).

2. Cooperation and coordination with NCA: the EC and NCA must cooperate closely and coordinate their enforcement actions (through the European Competition Network or other arrangements) (Art. 38(1)). The EC can ask a NCA to support a market investigation (Art. 38(6)). A NCA may initiate a market inquiry on its own initiative where it has the legal authority to do so under national law. Prior to taking formal action, the NCA is required to inform the EC. The EC opening an investigation under Art. 20 relieves the authority of this possibility (Art. 38(7)).

3. Cooperation with national courts: national courts may consult the EC for information or advice when applying the DMA. The EC may on its own initiative send written observations to national courts (Art. 39).

4. High-Level Group for the DMA: the EC must create an expert group with representatives from various European bodies and networks (e.g., the European Data Protection Board and EDPS). Its primary duty is to assist the EC by providing recommendations, advice, and expertise (Art. 40).

[220] "Questions and Answers: Digital Services Act", European Commission (2022).
[221] Ibid.
[222] Ibid.

5. Market investigation requests: three or more MS can request the EC to open a market investigation. Within four months, the EC must determine if there are sufficient grounds to start an investigation (Art. 41).[223]

6. Digital Markets Advisory Committee: the EC will be assisted by a committee including a representative from every MS (Art. 50).

Failure to comply with transparency and cooperation requirements may result in fines of up to 1% of the platform's annual global turnover. The EC may also impose periodic penalty payments on platforms, including gatekeepers when appropriate, and associations of platforms, up to 5% of the daily average global turnover in the previous financial year.

Gatekeepers may face heavier sanctions for violating the DMA, including fines of up to 10% of their global annual turnover. The fine might rise to 20% of the global annual turnover for repeated offenses. If a gatekeeper violates the rules three or more times, the EC can impose a temporary ban on mergers or impose divestiture requirements.

Contrary to competition cases, the EC won't have to go through the burdensome process of defining a market, proving that the gatekeeper holds a dominant position, or demonstrating that its conduct is harmful. Only non-compliance with the rule must be proven by the EC.

VI. Conclusion

There is a widely shared opinion that competition rules, remedies and enforcement did not grant effective protection to competition in digital markets over the last years.

It is often said that competition law is slow, but the complex nature and characteristics of digital markets explain, to some extent, the courts and NCA's delay in delivering decisions. It is very unrealistic to expect that authorities will be able to gather information about the market conditions as platforms do. Even if authorities get access to data, a considerable amount of time will be needed by them to understand its implications. The Google Shopping case saw the EC break records of data collected, but it took more than 7 years for the publication of the decision.[224]

In their work, Gal and Petit[225] outline six causes explaining the failure of remedies to restore competition in many digital markets. Failure of remedies to restore competition created the desire for more interventionist regulation that apply *ex-ante*.

The DMA (together with the DSA) is a milestone in the regulation of digital markets.

Change was expected to come from the EU since in the last two decades it has developed a more active competition law enforcement, oriented towards effective scrutiny of exercise of high market power and also, to some extent, bearing in mind that the most valuable digital companies in the world are American. The UK, for instance, is proposing similar rules – the Digital Markets Unit[226] – yet to be published. However, some stakeholders consider that the

[223] For an Art. 18 investigation, a request by a MS suffices.
[224] Parker, G. et al. (2020), p. 23.
[225] Gal, M. and Petit, N. (2021), p. 8.
[226] "Digital Markets Unit", Gov.UK (2021).

EC should open talks with the US for a possible alignment of the treatment of gatekeepers across the two sides of the Atlantic.

The main purpose of this Thesis was to critically assess the overall balance between competition law enforcement and remedies in the digital field and other forms of public regulatory intervention in this area, thus anticipating somehow the near future and evaluating whether the newly designed regulation, namely DMA provides a sufficient basis to accommodate the existing difficulties

In this regard, the DMA contains some relevant insights over these problems and provides a good foundation not only for regulators, but also for gatekeepers, which now have a legal starting point to ensure that they are developing a future-proof product.

Regulation should not be so limiting that it eventually blocks innovation, and not so liberal that it fosters unbalanced situations. An equilibrium is desired.

An aspect that has been criticized in the DMA is its very inflexible system of prohibition. Art.5, 6 and 7 contain a *numerus clausus* of *per se* rules. The *per se* rules do not require proving the actual harmful effects of a conduct but outlaw that conduct as such.

On the one hand, this enhances legal certainty. On the other hand, the *per se* rules may prohibit a conduct that does not cause harmful effects ("false positive") and may fail to consider a harmful conduct as such ("false negatives"). In addition, these rules can be seen as imposing a rigid, one-size-fits-all approach on gatekeepers with severely different business models. At the same time, the intrusiveness of these obligations must be weighed against the demonstrated ability of gatekeepers to dodge regulations.

The DMA imposes general remedies, while competition law imposes case-specific remedies. Therefore, the general remedies of the DMA may be to some extent limited compared to some competition remedies. Exploiting the opportunities created by the coexistence of both is the way to go for the EC.

This instrument will only be effective if there is adequate enforcement and compliance. The EC will be the sole enforcer of the DMA. Nevertheless, there have been concerns that the EC will only be able to fulfil the task if it has sufficient human and technical resources, including digital experts.

If the EC lacks the resources and expertise, the gatekeepers will most likely not take their obligations seriously. Ineffective enforcement would undermine the respect earned by the EU as the first jurisdiction tackling gatekeepers.

It is also argued that under enforcement is likely to be highly costly, because among other things, market power of large technology platforms is more enduring.

The effectiveness of the DMA will also depend on the combination with other provisions, namely the DSA and the Data Act.

On a brief note, there isn't currently a regulation on virtual reality or what we would call a "Virtual Reality Act". With the rise of fictional universes and projects like the Metaverse[227],

[227] See "Metaverse: What are the legal implications?", Clifford Chance (2022).

one can question the potential need of the DMA to soon be updated in order to include rules that apply to Metaverse, for instance.

Despite all the criticism, the DMA intends to tackle the current digital challenges by imposing stricter rules, creating new bodies (such as the DSC, the Digital Markets Advisory Committee and the High-Level Group for the DMA), imposing significant fines (up to 20% of the global annual turnover for repeated offenses) and interoperability requirements, prohibitions on self-preferencing and on restricting switching, creating obligations to allow app un-installing and changes to default settings and an auditing obligation as well (Art.15).

As I mentioned above (p. 42), *"the Act addresses unfair conduct by gatekeepers that either violate current EU competition laws or that, because to the systematic nature of their actions, cannot always be successfully addressed by these laws. Thus, the DMA will minimize the negative structural effects of these unfair practices ex-ante while not restricting the EU's ability to interfere ex-post by enforcing existing EU competition laws".*

Competition law and the rules regarding digital markets are not perfect and can't predict everything. As an example, the highly regulated banking sector itself faced crisis in the last decades.

The success of the DMA will, to a great extent, depend on its effective application, meaning that the enforcement, timely decisions, human and technical resources, as well as compliance will be key factors.

Together with the DSA, Data Governance Act, Data Act and the AI Act proposal, the DMA will certainly change the functioning of digital markets and gatekeepers.

With all the above mentioned in this Thesis, the DMA marks an important turning point and a much-needed piece of legislation. It creates numerous obligations on gatekeepers, signalling a new era of digital regulation in the EU that will foster a new kind of interplay between competition law enforcement and *ex-ante* regulation in the digital field. Such interplay will require continued examination and critical analysis that the present dissertation, to the limited extent that is feasible in the current stage of normative evolution, has purported to anticipate.

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