

Louvain School of Management

How digital near monopolies impact consumer welfare?

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Abstract

This paper aims to analyze the impacts of near monopoly platforms on consumer welfare in Europe. An analysis of the actions taken by the European institutions, to mitigate the negative impacts on the consumer and to fill the gaps in the current digital laws is also made. Finally, alternatives for other stakeholders such as users and digital businesses are outlined to support new European regulations.

On the one hand, a near monopoly situation allows for the centralization of services adapted to consumer preferences to satisfy their needs. This situation reduces information asymmetry and user search costs. Digital near monopolies will, with their surplus profitability, be able to invest in longer term research innovation projects. Considering that the payoff of an innovation is higher in a near monopoly situation, the prospect of increased profits will stimulate innovation because profits result from market power. On the other hand, digital platforms in a near monopoly situation will reduce privacy by collecting a significant amount of user data. The situation creates security concerns and a dependency of consumers on these platforms. Digital near monopoly, with the help of a "now-casting radar", will limit competitive threats, create a "kill zone" for small companies and startups and discourage competitors from entering the market and bringing new innovations. Finally, given their power, large user base and the amount of data collected, these platforms can harm consumers by abusing their dominant position.

Following the impacts highlighted, this paper then analyzed what are the main current laws regarding digital near monopolies, and what are the impacts and limits regarding the negative aspects of these near monopolies. Given the shortcomings of the current legislation regarding the negative effects of digital near monopolies on consumers, the European institutions have decided to act. The European institutions have validated 4 laws, which will soon be in application, aiming at reforming the digital space. These laws will have as objectives to create a safer digital space, with more competitive and fairer markets favoring innovation. The European Union, by establishing a complete standard for the regulation of the digital space, erects a powerful symbol putting an end to the reign of "too big to care" near monopolies.

In the final section, this document highlights, regarding the negative impacts of digital near monopoly, some non-legislative solutions, that can be put in place by consumers, businesses in general and near monopolies.

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We would also like to thank our families and friends who have encouraged and supported us during these past months. As humble students finishing our more than rewarding academic career at the Louvain School of Management, we hope that this research will be a source of inspiration and will bring added value to users and companies active on digital markets.

Table of Contents

INTRODUCTION.....	1
1. DEFINITION OF KEY CONCEPTS	3
1.1. DIGITAL PLATFORM AND NEAR MONOPOLY	3
1.1.1. <i>Digital platform: definition</i>	3
1.1.2. <i>How do digital platforms gain power?</i>	4
1.1.3. <i>Digital near monopoly: definition and geographical scope</i>	8
1.2. CONSUMER WELFARE: DEFINITION AND SCOPE	11
2. DIGITAL NEAR MONOPOLY	13
2.1. ACTUAL DIGITAL NEAR MONOPOLIES: THE CASE OF GOOGLE, META & AMAZON.....	13
2.2. COMPETITION	18
2.3. GENERAL BENEFITS FOR CONSUMERS.....	22
2.3.1. <i>General benefits - Quality</i>	22
2.3.2. <i>General benefits - Innovation</i>	25
2.4. CONSUMER HARM	27
2.4.1. <i>Consumer harm – Quality</i>	28
2.4.2. <i>Consumer harm – Innovation</i>	30
2.4.3. <i>Consumer harm – Gatekeepers & Abuse of dominance</i>	32
3. IMPACT OF EUROPEAN LEGISLATION ON DIGITAL MARKETS.....	35
3.1. KEY CURRENT REGULATIONS	35
3.1.1. <i>Antitrust regulations</i>	35
3.1.2. <i>General Data Protection Regulation</i>	37
3.2. IMPACT ON DIGITAL NEAR MONOPOLIES	39
3.3. IMPACT ON CONSUMER WELFARE.....	43
3.4. FUTURE PROJECTS.....	46
3.4.1. <i>Digital Services Act (DSA) & Digital Market Act (DMA)</i>	47
3.4.2. <i>Data Governance Act (DGA) & Data Act (DA)</i>	49
4. ALTERNATIVE SOLUTIONS	52
4.1. ALTERNATIVE SOLUTIONS FROM CONSUMERS	52
4.2. ALTERNATIVE SOLUTIONS FROM BUSINESSES	55
4.2.1. <i>From firms without a near monopoly position</i>	55
4.2.2. <i>Alternative from digital near monopolies</i>	57
CONCLUSION.....	59
BIBLIOGRAPHY	62
APPENDICES.....	74

Introduction

Since the introduction of the Internet, the digital world has grown exponentially. Large digital companies have become increasingly important in recent years. According to the 2020 Forbes ranking, Google, Meta, Amazon as well as Microsoft and Apple, all of which are in the digital field, made up the top 5 most valuable companies in the world (Forbes, 2022). This type of company has a significant impact on the global economy and more globally on our societies by changing our habits, transforming our modes of communication or facilitating access to information. The rise of these companies, their near monopolistic positions and the general concentration of the digital markets, raise however some concerns regarding their impacts on our societies and the adequacy of the current European regulations. However, several European legislative projects are being developed to better regulate the digital domain.

This paper focuses on the impact of near monopoly digital platforms, which companies like Google with Google search and Meta with Facebook have, on consumer welfare in Europe. The amount of recent information in the literature on the subject being abundant, this document allows to synthesize the information, and to establish a clear vision of the current situation regarding the impacts of these platforms but also regarding the current European legislation. Finally, this document highlights various solutions to remedy some of the negative points of digital near monopoly that can be implemented by actors other than European institutions. More precisely, the research highlights elements of answers to the following research question and sub-questions:

- **How digital near monopolies impact consumer welfare?**
 - a. How can a platform become a near monopoly, and how to define consumer welfare?
 - b. What are the main impacts of digital near monopolies in terms of quality and innovation?
 - c. What are the impacts and limitations of European institutions' actions?
 - d. Can alternative solutions for consumers and platforms be implemented?

The collection of secondary data from various books, scientific articles and reports from the European Commission allowed us to answer the different questions asked. In addition,

several economic journals, databases, press articles and websites belonging to private actors such as Airbus, have also allowed us to provide other elements of answers.

1. Definition of key concepts

Before highlighting the positive and negative impacts of digital near monopolies, it is important to establish some basics. This section will first determine what a digital near monopoly is by identifying the main characteristics of platforms and highlighting the forces that allow these platforms to potentially become near monopolies. Finally, a definition of consumer welfare will also be developed, as it is necessary for the evaluation of the impacts of near monopolies.

1.1. Digital platform and near monopoly

1.1.1. Digital platform: definition

The Internet has enabled the creation of a new type of organization: digital platforms. By definition, a platform generates value by enabling and facilitating transactions between economic agents, while managing network effects among them (Belleflamme & Peitz, 2018). These entities differ from traditional companies also called pipelines that use their assets and personnel to create value in a linear way (Belleflamme & Neysen, 2021). We also refer to "two-sided" platforms, platforms that facilitates activities involving two or more interdependent user groups" (Hovenkamp, 2021, pp.1957). Two-sided platforms mainly meet the expectations in many situations of sellers on one side and buyers on the other side as well as users and advertisers. The main characteristic of these organizations is not to control transactions, or in other words to control the entire value chain, but to enable and facilitate transactions between different users (Bacache-Beauvallet & Bloch, 2018; Belleflamme & Peitz, 2019a).

Platforms have already existed for thousands of years in the offline world. People used to meet in central places to interact and exchange goods. For example, trade fairs or shopping malls that are physical places that allow buyers and sellers to meet are considered as platforms. However, these platforms have a limited scope due to their physical nature. The Internet has introduced this type of organizations into the digital world and has allowed this type of entity to have a much wider reach, for example through websites or digital applications (Belleflamme & Peitz, 2019b; Pollock, 2018). Digital technologies have therefore made interactions easier for platform users. The advantage of the Internet for platforms is a reduction in transaction

costs, coordination costs and a reduction in trust issues as well as access to a vast range of users. Consequently, this strongly encourages the emergence of this type of organization in the digital world and justifies the important presence of these digital platforms in the global economy and our daily lives (Belleflamme & Neysen, 2021). The growth of online platforms is therefore almost free with endless economies of scale (Pollock, 2018). To illustrate this, we will take the example of a carpooling platform.

In the "offline" world, in addition to limited economies of scale, this platform will have difficulties to have an efficient meeting point between the supply and demand of carpooling. Furthermore, without a trust overview of a user it will result in people being reluctant to engage in this type of transaction.

On the other hand, a digital platform such as BlaBlaCar overcomes these difficulties by providing an application that is easily accessible to all people wishing to engage in this type of transaction and who have an internet connection. Moreover, via a rating system that is also very accessible, users can easily get an overview of the reliability of the other parties in the transaction (Belleflamme & Peitz, 2021).

1.1.2. How do digital platforms gain power?

As a reminder, a digital platform generates value by enabling and facilitating transactions between economic agents, while managing network effects among them (Belleflamme & Peitz, 2018). They mainly gain market power through three sources: network effects, switching costs and barriers to entry (Tucker, 2019).

a) Positive network effects

Positive network effects "occur when a good or service increases in value with the number of users" (Tucker, 2019, pp.1)¹. People, in most platforms, will be interested on the one hand on the participation and the level of use of the platform of the members of their group and on the other hand on the participation of the members of the other group (users and

¹ These network effects can also be negative and may therefore decrease the value with the number of users. However, in the case of market power gains, we focus only on positive network effects.

advertisers). This explains the existence of two types of network effects: cross-side and same-side network effects (Belleflamme & Peitz, 2019b).

Cross-side network effects refer to the fact that there is an increase in the value of one group of users when the number of users in another group increases. For example, for two-sided platforms such as Amazon or eBay, a potential increase of sellers can occur if the market size and thus the number of buyers increases. Indeed, it will be more interesting for sellers to prioritize the marketing of their products on this platform because they will reach a larger group and potentially a larger demand. Conversely, the larger the number of sellers, the more buyers will tend to join the platform because the supply will be greater (Boudreau & Jeppesen, 2015). A second type of cross-side network effect is the fact that users of the same group 'A' also indirectly pay attention to the choices of other users of the same group 'A' because these choices have an impact on the users of another group 'B'. Indirect network effects result from the combination of these two types of cross-side network effects. As a result, user decisions are interdependent due to positive externalities between these different user groups (Belleflamme & Peitz, 2019a).

Next, same-side network effects or direct positive network effects refer to an increase in the value of a group of users when the number of users in the same group increases (Belleflamme & Peitz, 2019b). For example, for Facebook, the higher the number of users, the more users will tend to join this platform. Indeed, these users will get a higher value with this platform than others because they will be able to communicate and interact with more people on a single platform (Hovenkamp, 2021). These network effects today can explain the success of this platform but also of other social networks platforms like Instagram or TikTok. These same-side network effects may also have been the cause of the popularity of QUERTY or VHS in the past (Parker & Van Alstyne, 2005).

It is also important to note that in addition to these positive network effects, some negative network effects may occur. For example, members within a group may compete to interact with the other group as in dating applications where an increase in users of the same gender leads to a decrease in the probability of matching with a person of the other gender. Another example is, on a platform, if the competition between sellers increases, the congestion problems due to an increase in the number of sellers will increase. Therefore, the expected benefits from them may decrease. An increase in competition could also lead to a decrease in

prices and an increase in the variety of products that would be beneficial to buyers. This decrease in prices could lead to an increase in buyer participation, which would ultimately be favorable for sellers as well. Therefore, platforms should not overlook the negative as well as positive effects of networks and find a compromise that increases the willingness of buyers to participate when a seller is added to the platform (Belleflamme & Peitz, 2019b).

b) Switching costs & Entry barriers

Another factor that creates an increase in the market power of a platform is switching costs, the cost of transferring users from one platform to another. Lack of coordination among users to switch platforms or simply losing valuable data (e.g., when a health or finance application that uses the old data collected) during the switching process hinders users from making the switch. Therefore, it prevents competitors, to some extent, from attracting users to their platform (Tucker, 2019; Belleflamme & Peitz, 2021).

Platforms can also gain power by raising the barriers to entry into their market and thereby reducing the number of new competitors.

A first barrier is that, in order to reach a large mass of users, platforms can lower their access fees or even make access free (Boudreau & Jeppesen, 2015). This can be possible thanks to specific strategies such as Facebook's, which does not receive its revenues in its most important market that is the social media market. Meta owns three of the four most used social platforms in the world: Facebook, WhatsApp and Instagram. Facebook is the most used social platform in 2022 with approximately 2.91 billion users (Chaffey, 2022). But Facebook earns most of its revenues in another market, which is digital advertising, where the platform had 22.3 percent of the share of total digital ad revenues in 2020 (Hovenkamp, 2021; Statista, 2016-2020). Google Search operates in the same way. Google's search engine attracts more than 90 percent of Internet searches and as everyone knows, this search engine is free. Google will also make most of its revenue in the same other market as Facebook, where the platform had 27.5 percent of the share of total digital ad revenues in 2020 (Hovenkamp, 2021; Statista, 2016-2020). This type of strategy has the consequence of making it difficult for competitors to emerge as they cannot afford to charge anything to its users.

In addition, platforms such as Google or Facebook, which make their profits in a market where they are not monopolies, make it difficult to define abuse of a dominant position in a market. In fact, it becomes difficult to denounce abuses of dominant position in a market where the platform in question does not have most of the market shares. Convergences that exist between these different markets and digital platforms, through their diversification, have increased the difficulty of correctly delimiting markets (Marty, Harnay et al., 2019).

Furthermore, with the amount of data that is increasing exponentially, companies can store and exploit useful data for the proper development of their economic activities in their respective sectors with the objective of improving their performance. Consequently, the efficient exploitation of their data allows them to acquire inimitable knowledge for competitors that will therefore act as barriers to entry (Marty, Harnay et al., 2019). Moreover, since the algorithms developed by these companies improve their performance with the input of new data, the consequence is that extra network effects appear (The Economist, 2017). Indeed, with additional data, without changing the price or the amount of the initial investment, a company has more possibilities to improve its products, which increases its attractiveness to other users (Belleflamme & Peitz, 2021).

Finally, to strengthen the barriers to entry, digital platforms can protect themselves by using intellectual property rights. Digital platforms would not remain profitable for long if there were no means to prevent competitors from stealing their knowledge and know-how. Intellectual property can be defined as a non-physical property that is the product of the creation of the mind which includes inventions, artistic and literary works and other name and images used in commerce (May, 2006). The main purpose of the intellectual property law is to give inventors legal rights to the intellectual goods that they create. This allows them to earn recognition or financial benefits for their creations and to protect their ideas and prevent problems related to the illegal use of their works by others (Gailly, 2018; Stanford Encyclopedia of Philosophy, 2021). So, on one hand, innovators and inventors receive protection for a certain period to allow them to cover their investments and to have the opportunity to generate profits (Arnold, 2012). On the other hand, in return, they will have to make their patented inventions/ innovations public. This will allow others to benefit from their new knowledge to discover other inventions and develop innovative technologies. Both ways, therefore, encourage innovation and creativity for the benefit of all (Berger, 2015). Digital platforms use intellectual property rights to preserve their exclusive rights and consolidate their dominant positions. Digital platforms can therefore

control digital information, and use patents to protect their algorithms and software (Pollock, 2018).

Combining positive network effects, high switching costs with barriers to entry such as possessing inimitable knowledge, patents or having expensive and indispensable assets to survive in a market allows large digital platforms to gain a clear advantage over smaller platforms (Hovenkamp, 2021). When the first platforms grow in a sector, it becomes exceedingly difficult for rivals to compete with them. In fact, the digital platform taking advantage of positive network effects, generate two types of feedback loops, (1) attraction loop and (2) attraction spiral, thus allowing the gathering of users on a single platform. More precisely, attraction loop refers to the fact that the more the activity level of a single group increases, the more interesting it is for the members of this same group to increase their activity level resulting in a new increase of the global activity level of the group. On the other side, attraction spiral refers to the fact that it is more attractive for one group 'A' to increase its activity level when the activity level of another group 'B' increases and vice versa (Belleflamme & Peitz, 2021). The markets are therefore often moving towards a monopoly situation where few platforms are in competition due to their initial advantages (Pollock, 2018). Large platforms can also acquire other companies to get access to new knowledge in markets not necessarily related to their core market but in a way that can allow firms to diversify into future markets. They also can use this knowledge in their own market to consolidate their positions (Marty, Harnay et al., 2019). Some monopolies may also follow a strategy of “killer acquisitions” to simply consolidate their positions without goals of using new knowledge by buying out potential competitors before they acquire larger market shares and become real threats. Monopolies have enough money to afford to buy up young companies and avoid the threat of a competitor gaining significant market share (O, 2021).

1.1.3. Digital near monopoly: definition and geographical scope

In our research, we focus on digital near monopolies. These can be defined as digital platforms that have managed either (1) to acquire the majority of the market share, thanks to several factors (see part 1.1.2), (2) have the ability to “monetize” this market power by charging users and/or others, such as advertisers, leading to sustained supernormal profits and/or growth” (Moore & Tambini, 2018, pp. 22) and/or (3) possess "significant control of the

digital markets on which consumers and other businesses depend" (Moore & Tambini, 2018, pp. 22).

Moreover, digital near monopolies are also characterized by high barriers to entry and high switching costs, such as lack of coordination among users to switch to another platform or intellectual property rights, making it difficult for competitors to emerge and users to move to other platforms (Belleflamme & Peitz, 2021). For example, as mentioned earlier, having a large database allows the platform to take advantage of additional network effects and to reinforce the barriers to entry, which consequently undermines the market's contestability (Krämer, & Schnurr, 2021). However, unlike traditional monopolies, digital near monopolies do not possess a dominant position "to the point of excluding all other viable competitors" (Investopedia, 2021) and then, according to Vie publique (2020), possess exclusivity of supply. Near monopolies are still facing competition from some significant players in the market. Consumers can switch platforms with a click (Stucke, 2018). Barriers to entry and switching cost are more vulnerable for digital near monopolies, as consumers can potentially coordinate to switch platforms, competitors can differentiate to meet the needs of a specific group, or consumers can multi-home: "use several competing platform services in parallel" (Belleflamme & Peitz, 2021; Barcevičius et al., 2021, pp. 8)

In terms of geographical area, the scope of our research will be limited to Europe, while comparing the action and impact of antitrust institutions in the United States. This choice of comparison was made because of the granularity of the markets: the fact, according to Belleflamme & Peitz (2021), that different platforms can share the global market by dominating different geographic submarkets. By analyzing the data on the search engine market, the social network market and the marketplace market, we can indeed notice a strong similarity in the market leaders in the selected geographical areas (Capala, 2020; StatCounter Global Stats, 2022-d; StatCounter Global Stats, 2022-f; Merton, 2021). The other regions of the world such as Asia, Latin America or Africa have also been analyzed but do not have the same degree of similarity in terms of leaders in the search engine, social network and marketplaces markets. Therefore, we did not include them in our research. For more details, see Appendix 1.1 on the companies operating in the three markets mentioned above in Europe and North America and what are the differences with other regions around the world.

From the above definition and geographical scope of work, our research will regularly analyze the following companies.

Google and Facebook are considered as two platforms in a near monopoly position in their respective markets: search engine and social media. These two companies make most of their profits in the digital advertising market, which is considered as a competitive market where Google and Facebook are nevertheless the two main players. In fact, if we consider the respective main competitors of Google and Facebook, for example Bing versus Google or Twitter versus Facebook, these competitors only make a negligible profit in the digital advertising market even though they use the same monetization strategy. More precisely, between 2018 and 2022, Google and Facebook have maintained respectively a market share of over 90% in the search engine market and 70% in the social network market (StatCounter Global Stats, 2022-a; StatCounter Global Stats, 2022-e). This large and persistent market share is also combined with very high revenues that reinforce their power. Google made a worldwide advertising revenue of 116 billion USD in 2018 and this amount continue to grow until reaching 209 billion USD in 2021 (Pratap, 2022). In comparison, Bing, its main competitor in the search engine market, made only 7 billion USD in 2018 and 8.5 billion USD in 2021 as advertising revenue (Dean, 2021). However, this competitor should not be overlooked as it belongs to another digital giant which is Microsoft. On the other hand, in the social network market Facebook also generates its main revenues from advertising. These revenues have increased from 55 billion USD in 2018 to 114 billion USD in 2021 (Pratap, 2022). Twitter, the biggest competitor of Facebook in Europe, earned 3 billion USD in 2018 and 5 billion USD in 2021 as global revenue as global revenue with advertising as the main source (MacroTrends, 2022b; Investopedia, 2022).

In this research, Amazon will also be considered as a near monopoly in the marketplaces market. Although the company does not have more than 50% of the marketplaces market share, it has a dominant position in most European countries and also in other countries.

In addition of being the most popular marketplace in Europe (Ecommerce News Europe, 2022), Amazon, with its Amazon Web Service (AWS) offering, is the global market leader with 32 percent of the market share of the cloud service providers in the first quarter of 2021, ahead of Microsoft Azure and Google Cloud, which have about 20 and 9 percent of the market share respectively (Gaudiaut, 2021). Moreover, when comparing Amazon's global revenues and the

number of visits per month in Europe to its marketplace, we can see a major difference with eBay, its main competitor in Europe. As a matter of fact, in 2021, Amazon was visited more than 1.4 billion times per month in Europe while eBay was visited only 664 million times (Merton, 2021). In addition, Amazon, in terms of revenue, achieved a global turnover of 469.8 billion dollars which represents an increase of 22 percent compared to its 2020 turnover (Delage, 2022). The main sources of revenue are online stores (222 billion USD in 2021), third-party seller services/marketplace (103 billion USD in 2021) and AWS (62 billion USD in 2021) (Cuofano, 2022). In comparison, eBay had a much lower global revenue of 10.42 billion USD in 2021 (MacroTrends, 2022a).

Therefore, considering its dominant positions in several markets and the significant difference in revenue and number of visits with its main competitors, we decide to consider Amazon as a near monopoly in our analysis.

1.2. Consumer welfare: definition and scope

Consumer welfare is a basic economic concept that, according to the OECD (2002), "refers to the individual benefits derived from the consumption of goods and services. In theory, individual welfare is defined by an individual's own assessment of his/her satisfaction, given prices and income". In the context of digital platforms, the particularity is that access to their products and services is, in almost all cases, free for consumers. For example, creating a Facebook account or doing a search on Google or Amazon can be achieved in just a few clicks for free. The consumer can therefore satisfy his need without having to sacrifice anything.

However, these services and products made available are not the result of a disinterested gesture. Indeed, with the emergence of the Internet and globally of this digital sphere, new business models have appeared, disrupting our "traditional understanding of price structure and welfare analysis" (Ma, 2022, pp. 1). In this new sphere, according to Ma (2022) data has become the new "currency", which will therefore be the point of reference for our in-depth analysis of the impact of these platforms on consumer welfare.

Finally, our analysis will focus on the positive and negative impact of these digital near monopolies on one side of the users benefiting from the platform: the end users/consumers.

There are two reasons for this choice. First, while it is important to know that other parties, such as advertisers or sellers, are affected in a non-trivial way by these near monopolies, considering the complexity of the current situation and the multiplicity of impacts on consumers and private actors, we decided to conduct our analysis only on one group in order to have a more in-depth analysis of a single group. Second, as mentioned later in section 2.4.1, many consumers are not sufficiently data-aware and data-literate to truly understand the impacts of the data-sharing agreements they make and the true value of the data they exchange with these types of platforms. This research would like to be useful to European consumers, who use digital platforms, by identifying and analyzing the impacts, both positive and negative.

The analysis carried out is therefore about how digital near monopolies, with this exchange of data, impact end-user/consumer welfare, focusing on innovation and the quality of services and products offered. The method used will consist in comparing the current near monopolistic situation of some platforms to a hypothetical situation where competition would be reinforced.

2. Digital near monopoly

2.1. Actual digital near monopolies: The case of Google, Meta & Amazon

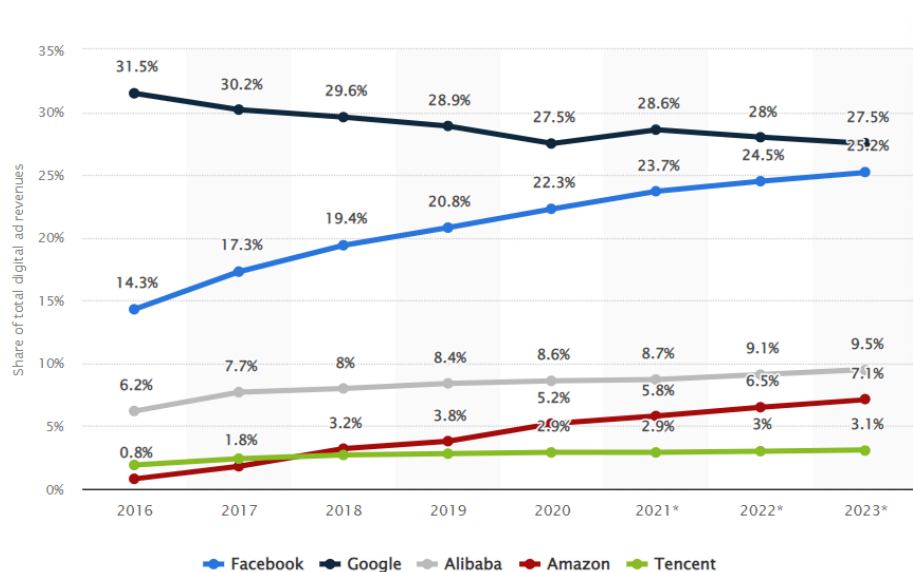
In this section, we highlight the cases of near monopolies of these digital platforms, and we analyze their initial development, the external reasons that allowed their current domination and the strengths they possess.

First of all, it is important to note that digital platforms such as Google, Amazon and Facebook, while they were only startups, decided to focus only on a part of the market that was not exploited. These platforms decided not to try to compete with other platforms that were present in the market before them. Once they were well established in this blue ocean left behind by competitors, the platforms raised venture capital to expand and penetrate larger markets. Facebook is a good example, the platform initially developed its social network by focusing on North American university students, Ivy League, before becoming the giant we know today, which keeps growing (The Economist, 2015). At first, the platform was created to allow users to interact and share content. But the platform quickly attracted advertisers who also wanted to interact with users through their ads. Facebook and Google, which also allow interactions between users and advertisers, have seen their numbers of users and advertisers grow very quickly, as well as their market capitalization, notably thanks to positive network effects. These platforms have taken advantage of the vast reach of users made possible by digital technologies to expand rapidly with almost infinite economies of scale because welcoming a new user into the platform costs nothing (Pollock, 2018).

More specifically, the rapid growth of these digital platforms would not have been possible without the omnipresent infrastructure, which has become almost essential for users, of the digital world (The Economist, 2015). Digital technology, which has its positives and its flaws, has undeniably changed the way we live our lives. Digital platforms like Facebook and Google play a significant role in our daily habits. Digital technologies have created a particular social space with its specific characteristics and values (Vitali-Rosati, 2015). The World Bank highlights the main benefits of digital technologies. These digital technologies have reduced transaction costs and information costs. They have promoted innovation. These technologies have also led to increased inclusion. They have provided greater efficiency by making services

more convenient and faster for a very large number of users (The World Bank, 2016). In our society, nowadays few people do not own phones, computers or bank cards except for some of the elderly, children and very poor people. The Internet has clearly been a key factor and an important business opportunity for the development of multi-sided digital platforms. The Internet and other technologies (e.g., payment systems such as PayPal) have been a real driver and have enhanced interactions between user groups (Belleflamme & Toulemonde, 2016). Facebook and Google were thus able to grow at an unprecedented speed with rapidly high profitability (Pollock, 2018). In 2021, the revenue from advertising by Meta digital platforms is 115 billion US dollars against 84 billion in 2020 and 70 billion in 2019 (Meta Platforms, 2022; Pratap, 2022). We can observe in Figure 1 below the large presence of these two major digital platforms compared to their competitors in the digital advertising market. In 2020, Google and Facebook shared 49.8 percent of share of total digital ad revenue worldwide (Statista, 2016-2020). There are more than 5 million advertisers on Facebook, but an exceptionally substantial number of them do not make any profit from their ads (Glance, 2018).

Figure 1: Net digital advertising revenue share of major ad-selling online companies worldwide from 2016 to 2023

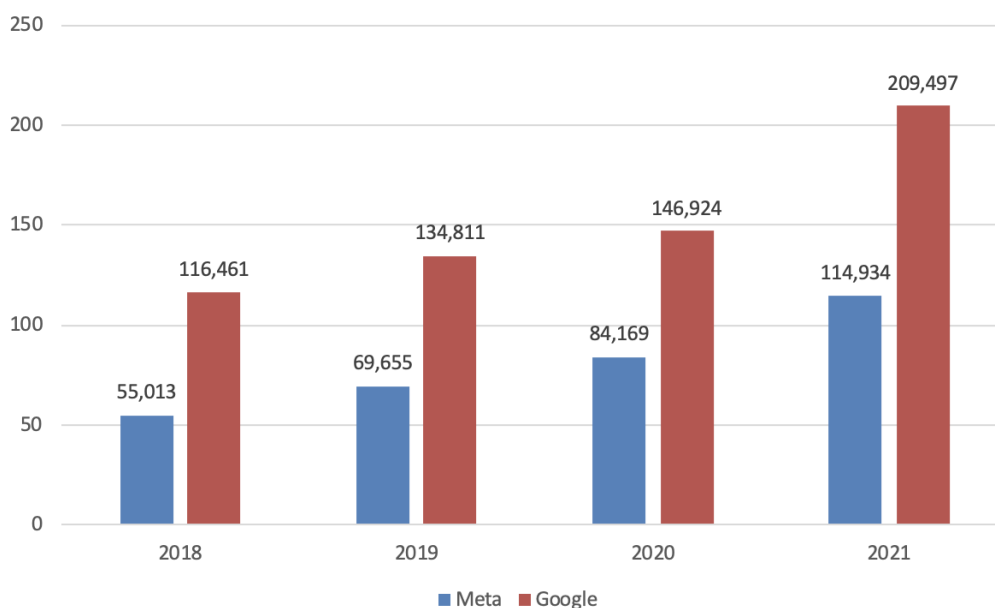


Source: Statista, 2016-2020.

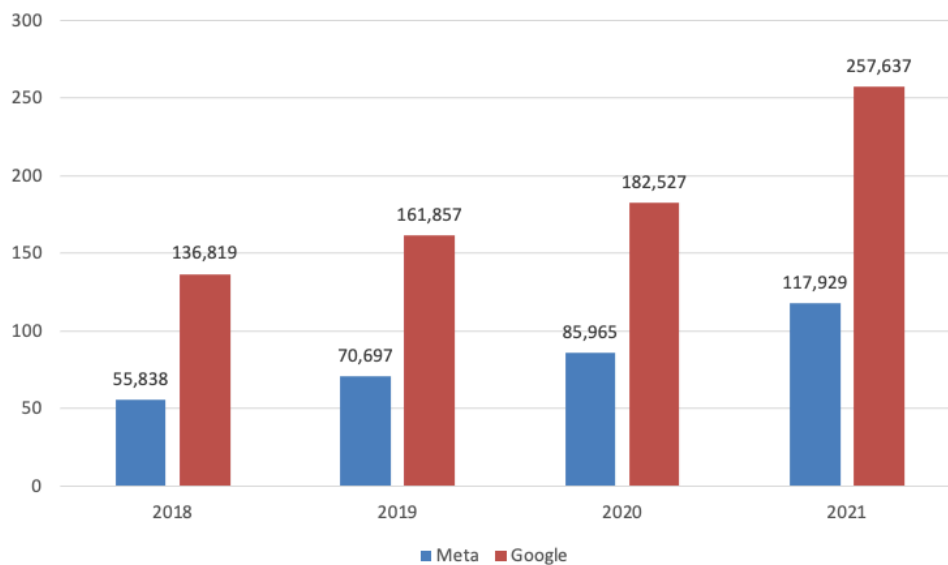
Network effects are not the only factors behind the success of these platforms. The digital near monopolies have developed knowledge, especially in the area of data management. These platforms have also developed skills to achieve significant economies of scale and have penetrated so many markets that it is difficult to define the boundaries of different markets

(Hovenkamp, 2021; The Economist, 2015). According to The Economist (2015), the digital near monopolies of these platforms can be seen as mostly harmless. Digital near monopolies such as Google would, for some, not be true monopolies because they would not make profit on the part of the business that they dominate. The former American lawyer, Robert Bork, supported this argument and said that Google search engine is not a case of monopoly because the digital platform is free for consumers. Consumers can also switch platforms with a click (Stucke, 2018). In fact, Google dominates the search engine market but makes its profit in advertising sales where the platform competes with others (Hovenkamp, 2021; The Economist, 2015). Still, it is important to note that the two American digital near monopolies Google and Meta are increasingly taking up space in the growing digital advertising market (D'onfro, 2017). Figure 2 and Figure 3 below show how important digital advertising revenues are to the global revenue of these powerful platforms. Digital advertising represents about 82 percent of Google's global revenue and about 98 percent of Meta's global revenue (Pratap, 2022; Yahoo! Finance, 2018-2021a; Yahoo! Finance, 2018-2021b).

Figure 2: Meta & Google ad revenue (in USD billions)



Source: Pratap, A., 2022.

Figure 3: Meta & Google global revenue (in USD billions)

Source: Data from Yahoo! Finance, 2018-2021a; Yahoo! Finance, 2018-2021b.

Network effects and efficient data management are serious advantages for today's digital near monopolies, but they are not insurmountable barriers to entry. At the time of its creation, Facebook was not the only player in the social networking market. Other competitors, with millions of users at that time, such as Orkut and Myspace, were already on the market and already benefited from certain advantages such as network effects. However, today Facebook is the digital giant of social networks and has some new advantages, especially concerning data. For example, Facebook has information on the friendships, relationships and interests of consumers, which allows the platform to do targeted advertising (The Economist, 2015). But what will be the situation in several years? Will Facebook manage to keep its dominant position, or will other competitors come and compete with this near monopoly? New companies might come up with innovative ideas and compete with digital near monopolies.

In this competitive game, the dominant position of digital platforms such as Facebook and Google have been favored by the acceleration of the decrease in the costs of collecting and exploiting consumer data. This has been made possible by the development of information technologies. These digital platforms can notably use this data to assemble and refine their advertising targeting (Bloch & Demange, 2017). We participate, via our daily use by liking posts on Facebook, searching on Google or buying products on Amazon, to freely improve their algorithms, develop the platforms and their digital tools (Vitali-Rosati, 2015; Lin, 2018). Platforms also can leverage its collection of data to sell it to advertisers and thus make a profit

(Griffin, 2015). In the e-commerce sector, platforms such as Amazon, thanks to the development of these information technologies, can use databases of their consumers' sales to better identify their shopping habits and set up targeted dynamic pricing (Bloch & Demange, 2017). But according to Pollock (2018), digital platforms Facebook and Google do not profit from access to user data but through the monopoly of our attention. Mr. Pollock argues that digital platforms would still be dominant and profitable even with less access to user data for ad targeting. Indeed, these platforms have reached such a high level of activity, they could still reach a very large audience with their ads.

Data collection by the near monopolistic platforms we study is usually made possible by tacit agreements between the platform and its users. Value-added services such as product recommendations, targeted ads, and access to friends or professional networks are provided free of charge to users in exchange for the possibility to assimilate and exploit their data. In exchange for the free use of these platforms' services, consumers will suffer a loss of privacy and control over their data. However, too much exploitation would create reluctance for users to join the platform due to a loss of their privacy (Bloch & Demange, 2017).

Despite the high barriers to entry, new companies are not hesitating to enter. There will always be competitors. Their challenges will be to develop global networks, store data, and algorithms to compete with the near monopolies. Digital near monopolies such as Google, Meta and Amazon have assimilated a lot of data which increases the accuracy of their algorithms. These near monopolies are therefore able to provide personalized search results to consumers. But nowadays many small and large companies are trying to compete with these digital giants. According to The Economist (2015), competition is constantly at hand, especially since consumers can switch from one search engine to another without financial cost and instantly. Widespread multihoming and low switching costs would therefore tend to reduce the advantages of digital near monopolies (Hoverkamp, 2021). But unlike the financial cost, the switching cost is not zero. Many users will not be willing to change their habits and try other possibilities that might be more suitable for them. Routine is a way to make our daily life easier. Breaking that routine is not easy. It can be difficult for consumers to change search engines, operating systems and social networks (The Economist, 2015).

The dominance of platforms such as Google and Facebook is undeniable. In most countries of the world, private monopolies are viewed with suspicion. Digital platforms are not an

exception. They are frequently under threat of sanctions, especially from European institutions such as the European Commission. However, the laws do not consider monopolies to be intrinsically bad. A dominant position does not necessarily lead to abuse. On the one hand monopolies have certain benefits for consumers, on the other hand the great domination of these platforms can lead them to be tempted to take advantage of their dominant position. Consumers can therefore face certain abuses (The Economist, 2015).

The case of Google is a good example. Many consumers are now accustomed to using the search engine Google Search as well as its operating system Android. For most users, this situation is ideal because they are used to their routines of using these platforms even though the competition is only a click away. On the other hand, Google benefits greatly from its dominance. The digital giant regularly faces threats of sanctions. For example, the European Parliament has suggested to the European Commission to potentially consider dismantling the Google platform by splitting its search engine (Google Search) from its other services. Google has also been fined billions of euros for using its Android mobile operating system to consolidate its monopoly on search engines (Dekonink, 2019). Google is not the only platform in this situation, Amazon for its dominant market position and Facebook for its use of private consumer data as well as their respective sizes raise fears of abuse (The Economist, 2015). We will see in more detail the impact of these abuses on consumers in section 2.4.3.

Given this overview, and having highlighted that these near monopolies can, in certain situations, abuse their position, we can then ask ourselves what the overall impacts are on consumer welfare.

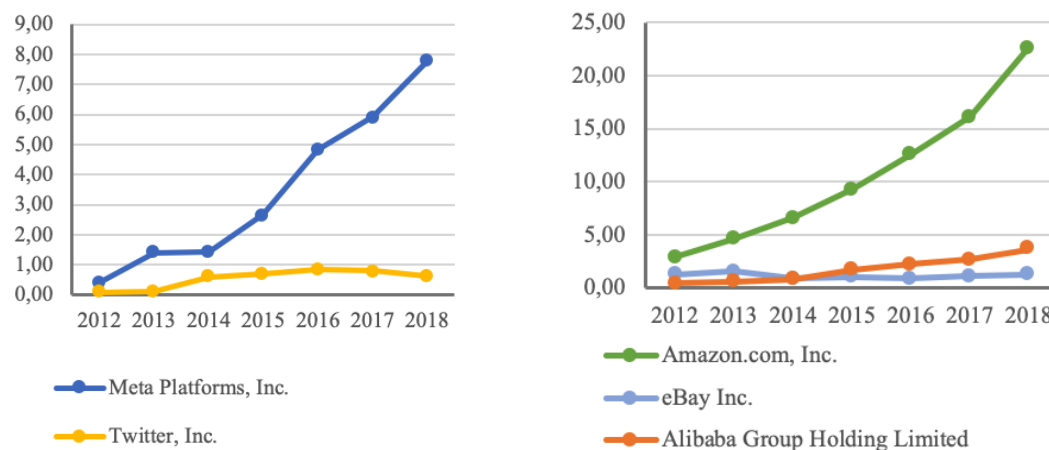
2.2. Competition

Although digital near monopolies are the most important companies in their respective markets, thanks in particular to their advantages such as network effects or their acquired knowledge and use of collected data, these platforms still face competition from players that already exist or could potentially enter the market.

First, the near monopolies are under pressure from players already present in their respective markets, such as Twitter versus Facebook, Bing (Microsoft) versus Google, or eBay

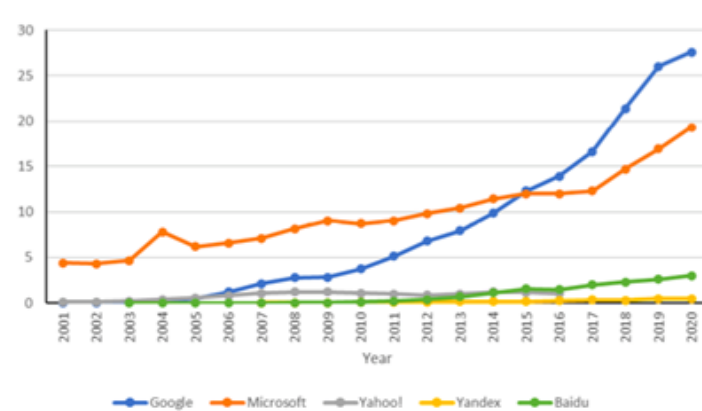
versus Amazon. These competing companies could potentially put an end to the domination they are experiencing in their respective sectors by developing and acquiring advantages that would exceed the current competitive advantages acquired by the near monopolies. A first approach to this situation is to analyze research and development (R&D) expenditures. Although these expenditures are not sufficient to guarantee a company's success in innovation, they are necessary to develop new technologies (Gailly, 2018). These new technologies, allowing for example an improvement of the algorithms used on the platforms, could make the services and products, offered by a company, potentially more attractive to the consumer. Although Figures 4 to 6² below show overall R&D spending, we can still see a domination of near monopolies over their competitors.

Figure 4 & 5: R&D expenses between 2012 and 2018 (in USD billions) – Social Media & Market place



Source: Data from PricewaterhouseCoopers, 2019.

Figure 6: R&D expenses between 2001 and 2020 (in USD billions) – Online search providers

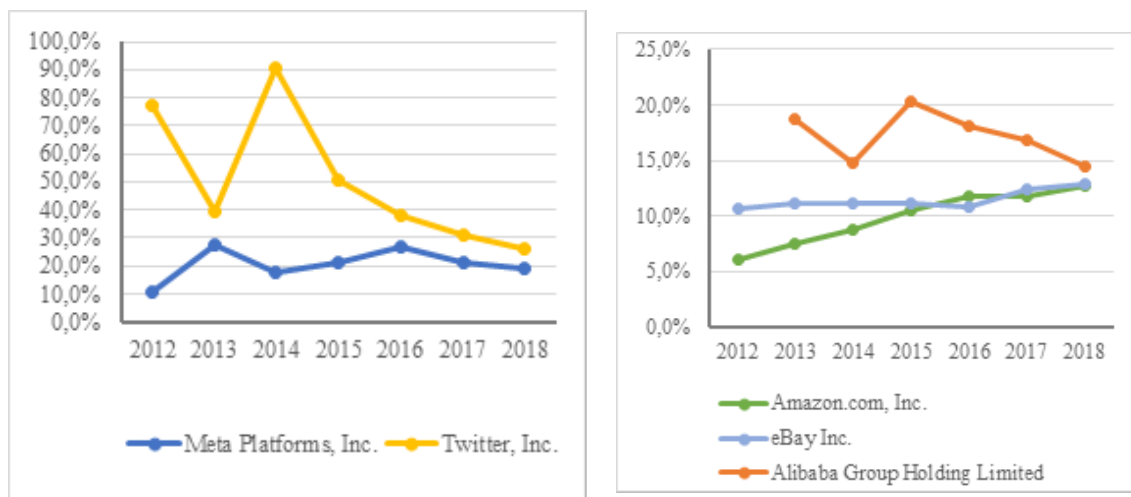


Source: Deller et al., 2021, pg.18.

² Figure 6 includes Yandex which is mainly present in Russia and Baidu in China.

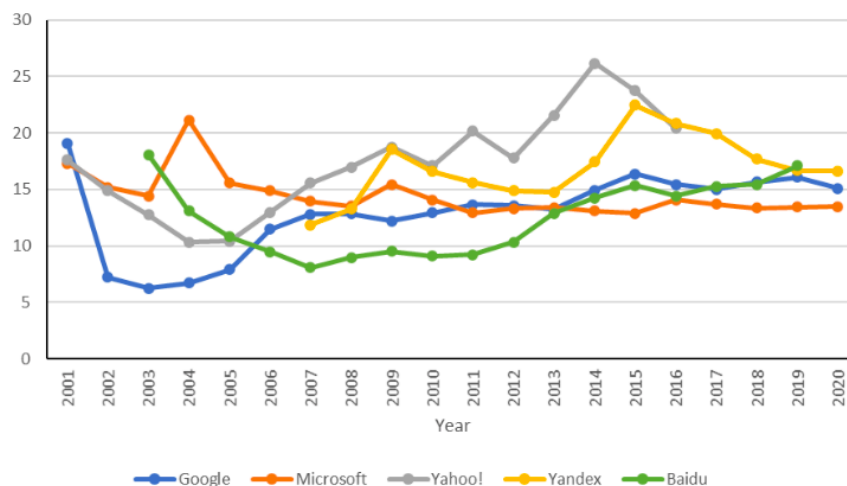
However, as shown in Figures 7-9 and explained by Deller et al. (2021), when taking the intensity of R&D spending, i.e. “the proportion of revenues devoted to R&D” (Deller et al., 2021, pp. 10), the dominant firms show an almost similar percentage compared to the competition. Finally, looking at the comparison of R&D spending intensity in the search engine market (Figure 9), Deller et al. (2021) explain that one cannot draw any conclusions about the difference in the degree of innovation when comparing a near monopolistic situation to a competitive situation. In fact, between the years 2001 and 2004, when the competition towards Google was more important, Google's R&D intensity was lower than in the following years. However, this difference can be explained by external elements such as the Dotcom crash that took place between 2001 and 2002 (Deller et al., 2021).

Figure 7 & 8: R&D intensity (%) – Social Media & Marketplace



Source: Data from PricewaterhouseCoopers, 2019.

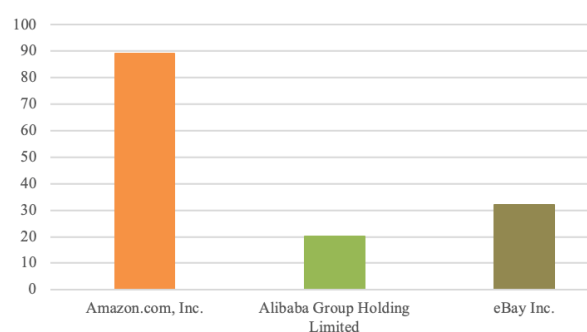
Figure 9: R&D intensity (%) – Online search providers



Source: Deller et al., 2021, pg. 17.

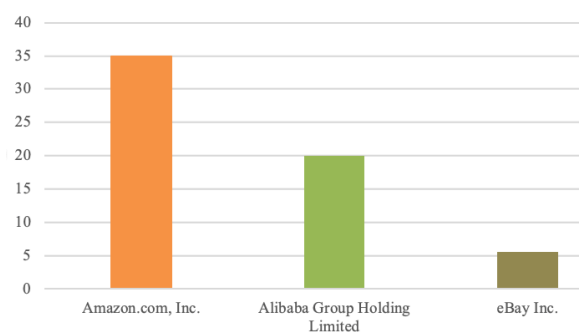
In addition to conducting in-house research, competitors can also put pressure on the largest platforms by acquiring new technologies or intangible assets through the acquisition of other players (Deller et al. 2021). In this area, notably due to their size and available resources, existing near monopolies also have a clear superiority in the total amount of their acquisitions. This is the case of Facebook, for example, which has made 95 acquisitions for a total of 25.89 billion USD (Tracxn, 2022-b). In comparison, its most important competitor in Europe but also in the world, Twitter, has made 69 acquisitions for a value of 0.98 billion USD (Tracxn, 2022-c). The same trend can be found in e-commerce platforms. As shown in Figures 10 and 11 below, Amazon has made more acquisitions and spent a larger amount.

Figure 10: Total number of acquisitions



Source: Data from Tracxn, 2020; Tracxn, 2022-a; Tracxn, 2022-d.

Figure 11: Total expenditures (in USD billions)



Source: Data from Tracxn, 2020; Tracxn, 2022-a; Tracxn, 2022-d.

Furthermore, these acquisitions allow the dominant platforms, in addition to acquiring new technologies or intangible assets, to reduce competition from potential new entrants either by developing them under the direction of the dominant firm or by stopping the project pursued by these smaller acquired players (Deller et al., 2021).

Finally, another important source of competitive pressure is companies with a near monopoly in other sectors. The OECD (2021) points out that a characteristic of competition in the world of digital platforms is that many are based on a business model that involves a conglomerate structure. The dominant firms are then potentially confronted with the services and products of other dominant firms in other domains that have opted to diversify their products or services. This is the case for Google, Apple, Meta, Amazon and Microsoft (GAMAM). For example, in social networks, a sector dominated by Meta, Amazon has created

Goodreads (focusing more on books), Microsoft has acquired LinkedIn and Google had Google+, the latter however has been removed. Another example is Amazon which, dominating the e-commerce sector, finds itself competing with Facebook Marketplace, Google Shopping or Bing Product Search, owned by Microsoft (Evans, 2017). These competing firms pose a significant threat to existing near monopolies because they can "exploit their existing ecosystem user base as a route to market and use the complementarities that these users enjoy by using related products from a single ecosystem" (Deller et al., 2021, pp. 21).

2.3. General benefits for consumers

The near monopolies of the digital platforms we use every day have undeniable benefits on consumers. In this section we will highlight the positive impact of data on the welfare of platform users. This impact is multidimensional, but we have decided to focus on the dimensions of quality and innovation. It is important to point out that consumer welfare is calculated empirically but each consumer has different behavior and the distribution of each user among different groups can be complex (Ma, 2022). Therefore, the impact of certain effects on consumer welfare should be analyzed on a case-by-case basis, which is obviously impossible. Our analysis will therefore certainly omit the impact on certain minorities who may suffer certain harms.

2.3.1. General benefits - Quality

The collection and exploitation of data by digital near monopolies has had positive impacts for users by allowing the quality of services of digital platforms to be improved. The development of these digital near monopolies has filled the weaknesses and erased the limits of traditional markets (Ma, 2022).

First, the near monopoly situation leads to the centralization of services on a single platform. Thus, users do not have to make any effort to satisfy their needs. This centralization has a direct positive impact on the quality of services and on the consumer welfare. At the level of digital sales platforms such as Amazon, consumers have access to a very wide variety of products and many sellers in a centralized location (Ma, 2022). Using the platforms of digital near monopolies such as Facebook and Google have become routine for many users. Routine

is a way to make life easier for users (The Economist, 2015). Breaking this routine and depriving ourselves of these platforms would directly impact the welfare of consumers. These platforms have become a necessity for most of us, both privately and professionally. Changing the current situation of near monopoly to a situation with strong competition would disrupt the welfare of users. For example, Facebook allows families to interact easily. Facebook allows professionals to reach a large part of their customers. A disappearance of these platforms would bring a big change in our habits (Haggart, 2018) and a stronger degree of competition would require additional efforts from the user.

The monopolies of digital platforms are beneficial to users because they allow them to centrally fulfill their innate need to interact with other users. Facebook provides opportunities for users to easily broadcast their thoughts, share photos, maintain relationships with many people and satisfy the need for external validation. Users enjoy liking, commenting, and identifying their friends or ephemeral contacts. With platforms like Facebook for private life or LinkedIn for professional life, you will be able to project the best version of yourself to give a good impression to the users around you (Sundar, Liu et al., 2018). Most users would not be willing to give up using these platforms despite the use of their private data. Giving up the use of Meta platforms will therefore likely decrease your social life and affect your well-being. If the user decides to delete his account, he will lose the memories shared on the platforms over the past years. The user would potentially lose contact with a large part of the friends added since the registration to the platform. Very few will dare to take the plunge and deprive themselves of their well-being (Sundar, Liu et al., 2018).

Secondly, the centralization of services on a single platform reduces information asymmetry and lowers transaction costs. A monopoly situation reduces search costs compared to a competitive situation. On digital platforms, consumers have at their disposal evaluation and rating systems on products, which allows reducing the asymmetry by being able to look at the opinion of other users on the different products. The more active users the platform has in one place, the more reviews there will be. The consumer will then be able to buy with confidence the product that best matches his expectations (Ma, 2022). Information has a market value for users and consumers because it reduces their search costs and increases their self-confidence. Digital platforms such as Google and Facebook allow users to find information, communicate and share relevant information with other users. Reducing search costs reduces dispersion and price levels. The reduction of search costs will also lead to an increase in price elasticity. These

effects improve the efficiency of the market, which is beneficial to users (Ma, 2022). "A financial market will be considered efficient if, at each point in time, the exchange prices incorporate all the information available in the market. In this case, the price indicates the intrinsic value of the asset, which is defined as the present value of the full future flows of its remuneration." (Robin, 2010).

In terms of information asymmetry, being active on near monopolistic platforms allows users to centrally monitor their environment and reduce the risk of missing information. Indeed, many users enjoy spending time looking at other users' content. Many users are active on Facebook to follow news and trends for fear of missing something (Sundar, Liu et al., 2018). The monopoly situation allows the reduction of information asymmetry compared to a competitive situation. It is not necessary for users to post personal content to find content that interests them. But the more content you share about yourself and the more active you are, the more you improve your social capital. With users centralized on one platform and building up good social capital, you will potentially find it easier to find a job on LinkedIn. It will also be easier to find a long-time friend on the platform. Being active on Meta would correlate to an increase in subjective well-being and self-esteem. By sharing your ideas with other users of a platform you will feel part of an online community which can increase your sense of belonging. Digital platforms allow users to express themselves and feel validated. All these elements are rewarding, and promote consumer well-being (Sundar, Liu et al., 2018).

Finally, near monopoly situation allows platforms to provide quality services tailored to user preferences through the use and analysis of a larger database than in a competitive situation (Lerner, 2014; Stucke, 2018). This is because platforms can predict and map consumer personality traits through their algorithms, they have created by using the numerous personal data collected. Specifically, the more users are present and active on a centralized platform, the more data that platform's algorithms will accumulate to know the preferences of users. So, the more consumers use one particular search engine like Google Search, the more relevant search results and recommendations the consumer will get. The same is true for social networks, which will offer relevant content or friendship suggestions relevant to the consumer. These benefits related to data management also generate positive network effects which promotes the consumer experience and consequently increases their welfare (Stucke, 2018). The companies we are studying Google, Meta and Amazon have achieved a dominant position in data management. These digital near monopolies manage platforms that attract many stakeholders

such as users, sellers, advertisers, software and app developers into their respective ecosystems. Digital near monopolies via their platforms will therefore store a lot of data that circulates for free which brings to these digital platforms an important market power that allows them to better respond to users' needs. Therefore, in addition to being free, the products and services of these digital platforms have an increased quality compared to a competitive situation (Stucke, 2018).

2.3.2. General benefits - Innovation

Digital near monopolies will undeniably play a role in innovation. A key aspect of innovation is the intensity of change that the innovation brings. Innovations can be divided into two categories: incremental innovations and radical innovations. Incremental innovations consist of small changes and simple improvements while keeping the general structure in place. These innovations will be more common than radical innovations (Gailly, 2018). At the near monopoly level that we study, these can be small improvements to platforms or algorithms to improve the services provided to users. Radical innovations consist of larger changes that make previous approaches obsolete. In contrast to incremental innovations, these innovations change the existing structure and carry more risk. Notably because it is difficult to convince people to break their routines to adopt a new technology (Gailly, 2018). At the level of platforms, near monopolies of digital platforms can be seen as a source of progress for our societies because these monopolies create new services for users, generate dynamic environments that foster innovation. Given the large collection of data of digital monopolies, these platforms are best placed to respond to users' needs and anticipate their future needs in order to innovate in that direction and promote consumer welfare (Guilhon, 2021).

First, it is important to remember that innovation is a key factor for the success of near monopolies. In an environment of uncertainty and competition, platforms have taken risks and invested in innovation to reach their current positions. These platforms have come up with innovative ideas, services, and business models that have had a beneficial effect on consumer welfare (Coris, 2019). It is undeniable that GAMAM companies through their radical innovations have improved the lives of consumers and brought real value to the users of the platforms. Their innovations have led to an increase and improvement in users' well-being (Deller et al., 2021). Moreover, the desire to maintain and consolidate this dominant position encourages near monopolies to use their profits to continue investing in innovation. Innovation

allows the sustainability of monopolies (Coris, 2019). To keep their near monopoly, firms will therefore innovate and file patents as a preventive measure for fear of competition (Calvano & Polo, 2021). The number of patents filed in an industry can be a good tool to measure the magnitude of innovation in an industry (Deller et al., 2021). If the near monopoly no longer meets the expectations of consumers, then a competitor will come and dispossess it of its near monopoly position, for example with radical innovations. This is the process of creative destruction. A company driven by innovations will implement solutions and technologies that meet users' expectations even better (Coris, 2019). This process unfolds over the long term because it challenges the existence of existing near monopoly by bringing in modern elements (Guilhon, 2018).

Secondly, according to the entrepreneur Peter Thiel, one of the investors of Facebook and one of the creators of Paypal, the economic rent, due to the competitive advantages of near monopolies, is a motivation for companies to innovate. Digital near monopolies are therefore promoters of progress and are beneficial to consumers. The U.S. Department of Justice agrees. The Department of Justice is indeed reluctant to impose obligations on digital platforms. Obligations against digital platforms could stifle the very innovation that has created dynamic competition for the benefit of consumers (Stucke, 2018). Curbing these near monopolies would therefore generate a slowdown in innovation and growth. This dominant position allows these digital platforms to establish longer-term research projects which would be more difficult in a market where competition is strong. Digital monopolies are beneficial to the consumer because their goal is to improve consumer welfare. According to Mr. Thiel, the government should not intervene in the success of digital near monopolies that bring higher and higher levels of innovation. He further explains that the emergence of new monopolies does not stifle innovation by taking the lead from old monopolies (Stucke, 2018). "The rise of mobile computing, [...], ended Microsoft's desktop dominance ...]. Before that, Microsoft had ended IBM's mainframe monopoly" (The Economist, 2015). So, monopolies and near monopolies are not infinite.

To innovate it is also important not only to follow an internal R&D investment strategy, but it is also important to absorb ideas found outside the company. Even for digital near monopolies that spend a lot on R&D it is impossible to acquire a monopoly of good ideas. Thus, digital monopolies, notably with the help of their large databases and platforms, will be able to draw on the ideas of others, such as their customers and suppliers, and absorb them to enable

new innovations (Gailly, 2018). Digital monopolies due to their size and available resources can acquire other companies to absorb their knowledge and technologies and thus foster innovation and consumer welfare (Deller et al., 2021). Although some acquisitions are made solely to block competitors, a retrospective analysis shows that some acquisitions have resulted in increased overall innovation, increased research and development productivity, or the introduction of new products that can benefit the consumer. Acquisitions can create synergies. Upon acquisition, near monopolies can provide resources to further exploit innovative ideas. These acquisitions can therefore be positive for innovation because they allow small firms to exploit and benefit from the resources of a near monopoly to a greater extent than in a competitive situation, thanks to the greater network effects. Finally, the possibility of being acquired also increases the incentives for small firms to innovate because they can potentially develop their product on a larger scale. Some acquisitions are thus more like feeder acquisitions (Calvano & Polo, 2021; Deller et al., 2021). However, the impact of acquisitions of startups or already established companies depends on a case-by-case basis and we will see in section 2.4.2 some negative impacts of these acquisitions, notably the creation of a "kill zone".

Finally, Chen & Schwartz (2013) argue that in certain situations such as in a Hotelling framework, a monopoly may have more incentives to innovate than in a competitive situation especially when it comes to incremental innovations. Indeed, the payoff from an innovation may be higher in a near monopoly situation than in a competitive situation. Sellers may have difficulty convincing consumers to buy their innovative products and thus benefit from their investments in innovation. Consumers might prefer to continue buying their competitors' old products. The benefits of innovating in a competitive situation may therefore be lower which may result in lower incentives to innovate (Chen & Schwartz, 2013). "The prospect of increased profits stimulates innovation and these profits result from market power (Deller et al., 2021, pp. 13)."

2.4. Consumer harm

The current digital monopolies like Google or Facebook have brought many benefits to our society such as facilitating access to multiple sources of information or establishing a network allowing simple, easy, and efficient communication between users. However, these monopolies are also the source of many concerns, not in terms of their excessive price, as their

products and services are free, but in terms of their impact on quality of services/products and innovation for the consumer.

2.4.1. Consumer harm – Quality

By weakening user privacy, causing security problems and making users dependent on their platform, digital near monopolies can have a negative impact on the quality of services and products offered.

First, digital near monopolies that do not face direct competition can "drive privacy below competitive levels and collect personal data above competitive levels" (Stucke, 2018, pp. 290). According to Stucke (2018), this level of data collection can be compared to an excessive price that would be imposed by a monopoly beyond the digital sphere. Furthermore, according to Ma (2022), this lack of privacy competition represents a decrease in product quality.

In relation to this situation, although platforms publish their privacy policies and many tools already exist to limit data sharing, evidence exists showing the existence of the "consumer paradox". This phenomenon shows that, although consumers are concerned about protecting their data, they take very little action on this concern. For example, consumers in general do not take the time to read the privacy terms of platforms or use very few tools to block data sharing (Ma, 2022). This may be because first, privacy terms are inconvenient and time-consuming to read, but also because consumers are not yet sufficiently data literate to fully understand the value of the data and the agreements they are making when using this platform (Toscano, 2021). This information asymmetry, therefore, allows near monopolies, according to Stucke (2018), to extract value from the data collected without paying the consumer its fair value.

Ultimately, even if the consumer took actions to prevent the collection of their data, for example via the use of a proxy server or an anti-tracking extension, this could reveal a high willingness to pay on their part which could then be detrimental to them (Belleflamme & Peitz, 2021). Moreover, Stucke (2018) explains that even in a scenario where near monopolistic platforms explained in a clear and easy way what data was collected and how it would be used, the balance of power between the consumer and the platform would force the consumer to accept the

proposed service. This because the platform benefits from network effects and offers its service on a "take it or leave it" basis. Consequently, the absence of alternatives and competition allows near monopolies to have a higher level of opacity on data collection but also to impose their offer on a "take it or leave it" basis. The result of this situation is a decrease in privacy protection and consequently a higher level of data collection than in a competitive situation without compensating the consumer a fair reward.

Second, platforms with a near monopoly may also decrease the quality of services and products offered as they may be subject to consumer security concerns. The first risk in relation to this dimension is that the fewer companies that own consumer data, the greater the risk of a government taking over these data (Stucke, 2018). This then makes the consumer vulnerable and potentially subject to covert and unwanted government surveillance. For example, Stucke's article uses the example cited by Abkowitz (2017) explaining that the Chinese government is collaborating with the digital monopolies present in China to develop a high-tech system to monitor its citizens.

Moreover, governments may not need to have an explicit agreement with these near monopolies to access the vast amount of stored data either. For example, Edward Snowden highlighted the secret infiltration of the National Security Agency, in collaboration with the British agency, into the database of Google and Yahoo, allowing the surveillance of hundreds of millions of users (Gellman & Soltani, 2013).

In general, with the presence of near monopolies and due to the significant value of the concentrated data, the incentives for third parties, governmental or otherwise, to access, legally or illegally, the database of one of these firms is greater than in a competitive situation, where the data would be dispersed in several databases. Moreover, the harm caused by infiltration or sharing would be bigger in a near monopoly situation than in a competitive situation with a smaller proportion of users and data. (Stucke, 2018).

In addition to the risk of more likely infiltration and greater damage, according to Stucke (2018), near monopoly being protected by the benefits of network effects and certain barriers would assess the impact of this kind of event as less significant for the continuation of their business and would be less fearful of the possibility of users switching to another platform. For example, Facebook, "does not make the process of collecting data on its platform particularly

difficult and institutes few negative consequences for those who abuse it" (Glance, 2018). Stucke (2018) uses the example of the #DeleteFacebook movement that emerged during the scandal with Cambridge Analytica. Although Facebook allegedly allowed Cambridge Analytica to have access to personal data of 87 million users allowing the development of software to steer the votes of American citizens (Belga, 2022), Facebook has a priori suffered very little from this scandal. On the contrary, the social network has seen a "thirteen percent increase in daily and monthly active users and a forty-nine percent increase in revenue, year over year" (Stucke, 2018, pp. 293).

Finally, the quality of the services and products offered in a near monopolistic situation is diminished because this situation creates a dependence of users on these platforms. This dependence is negative because, in addition to making users vulnerable to potential abuses of power (see part 2.4.3), it makes the impacts of potential technical failures that these platforms could suffer on consumer welfare bigger in a near monopoly situation than in a situation where the degree of competition would be higher. Indeed, according to de Öhman & Aggarwal (2020), due to their dominant position in the market and the increased dependence, a technical failure of this type of platform would have significant social and economic consequences for the different user groups. Most consumers, in the event of a failure, would find themselves unable to satisfy their need and would have to make efforts to find an alternative and coordinate with other users. Moreover, competing alternatives, not having access to the same amount of data as the dominant platform beforehand, would have had less means to improve the algorithms used and consequently would offer a lower quality service because it is less efficient. The technical failure of Facebook, in October 2021, which put the social network out of service for more than 5 hours is a good illustration. The first consequence of this failure was that people who only use Facebook were deprived of communication with their relatives. In addition, this outage also had a significant economic impact on small and medium-sized businesses that only use this platform to reach consumers to make their sales (Isaac & Frenkel, 2021).

2.4.2. Consumer harm – Innovation

Although digital platforms such as Google, Amazon or Meta have allowed the world to benefit from their innovations, there are also aspects that show that these types of platforms with near monopoly and great market power can undermine innovation in their market but also in others. Three negative impacts can be highlighted: (1) the use of a "now-casting radar"

preventing the emergence of threats, (2) the creation of a "kill zone" and (3) the ability to steer the innovations of smaller players.

First, thanks to the data monopoly that platforms like Facebook or Google have acquired, they can slow down innovation by using a "now-casting radar", a tool that was not yet available when these platforms were only startups. Specifically, thanks to their near monopoly on data, these companies can discern the consumer trend in their market before anyone else. In other words, they use this radar to highlight which products or services are becoming popular and will, as a result, acquire or stifle these competitive threats as quickly as possible (Stucke, 2018). Smith's (2019) article confirms Stucke's words and will illustrate by taking the case of Meta which, for example, with its VPN application Onavo, spied on its users' activity on their smartphones to spot potential competitors such as Instagram, WhatsApp or even Tbh. The 3 companies have been then acquired by the social networking giant. Moreover, when Snapchat refused the acquisition offer by Meta, the alternative to the refusal that was chosen was the creation of a copy of the most successful features of Snapchat on the networks owned by Meta. Some consider that the current low value of this company is due to this refusal to cooperate with Meta (Smith, 2019). Copying Snapchat's features is not an isolated case. Another example, although this one is very recent, is the one of Phhphoto, who filed a complaint against the Meta group, which, after showing interest in collaborating, allegedly copied the target company's features for its social network Instagram and thus reduced Phhphoto's visibility from all its networks. The Phhphoto company is now bankrupt (Bellens, 2021).

Second, while some might argue that acquisitions of digital near monopolies encourage the entry of startups, there is a growing amount of empirical evidence showing the creation of a "kill zone" in certain market segments in the sector affected by the acquisitions in question. The study by Koski et al (2020), analyzing data from 742 product markets worldwide for the years 2003-2018, has shown that when these digital giants make an acquisition, a decrease in the rate of market entry results. Similarly, on the financial market side, the capital available in venture capital also endure a decrease in the market targeted by the giants. These same effects were also observed in another study. According to Hathaway (2018), the presence of the giants, such as Google or Amazon, causes a decrease in the first funding investments of startups in their respective sub-sectors, i.e., internet retail for Amazon, social networks for Facebook, etc.

As a result, the near monopoly, upon their acquisitions, then discourages the arrival of potential new competitors and finds itself in a situation with no real threat. In other words, new entrants and investors avoid markets where near monopolies are present, which consequently makes improvements to the services and products offered by the dominant platforms rarer (McLeod, 2020). Indeed, these new entrants have a significant role to play in innovation because they can bring it through their own efforts, but they also represent a source of pressure that forces existing players to innovate on their side (Deller et al., 2021). Finally, the negative effect of this "kill zone" is even more important if the platform with a near monopoly and which has made acquisitions does not offer a new service or product to the market (Deller et al. 2021).

Finally, because platforms with a near monopoly benefit from advantages such as network effects or the collection of and access to a significant amount of data, smaller players will then bring innovations that are complementary to those of the existing firms (Deller et al., 2021). In fact, according to Deller et al (2021), for new entrants to surpass the advantages of the giants (network effect and large database), it is more likely that these players will be associated with radical innovations. However, as these are more difficult to implement effectively, we will have more incremental innovations that will complement the technologies already present. All these factors create a situation where the giants can then direct the innovation efforts of other actors in the same sector, and this can unfortunately negatively impact the welfare of society. For example, Leyden (2021) highlighted that a "lack of platform-level competition among digital marketplaces can result in socially inefficient platform design and meaningful welfare losses " (Leyden, 2021, pp.1). As an illustration, he uses Apple's App store and explains that the policy used by this platform of resetting customer ratings on an app after each update "has prompted a reduction in the frequency of updates for high quality apps and an increase in the frequency of updates for low quality apps" (Deller et al., 2021, pg. 24). As a result, he argues, this lack of competition has slowed the pace of innovation of applications and even eliminated some.

2.4.3. Consumer harm – Gatekeepers & Abuse of dominance

Digital near monopolies can also, due to the number of users they have and their market power, negatively impact our society by abusing their dominant position. More precisely, according to Ma (2022), platforms with a near monopoly can be considered as digital gatekeepers. This new concept, introduced by the European Commission but not yet

implemented in the legislation, refers to platforms that "(1) have a significant impact on the internal market, (2) serve as an important gateway for business users to reach their end users, and (3) enjoy, or are likely to enjoy, a well-established and sustainable position" (European Commission, 2022b). According to EPRS (2020), there are several factors that enable a platform to achieve this position, including strong network effects, the intermediary role of platforms, and their ability to access and use significant amounts of data.

These digital gatekeepers, because of their power, can take various actions (see Table 1 on the next page) that can negatively impact consumer welfare. Such behaviors, according to EPRS (2020), discourage potential competitors, increase barriers to market entry and reinforce user lock-in situations. As a result, dependency on these platforms increases. Innovative digital companies and startups find it difficult to bring alternative products and services to market. Finally, "gatekeepers have the ability to use their dominance in one market to extend that dominance to adjacent markets" (EPRS, 2020, pp. 3).

Several current examples can illustrate the practices mentioned above and highlighted by the EPRS.

A first example is when Google was accused and condemned by the European Commission of having abused its dominant position by systematically putting forward its own price comparator through its search engine (European commission, 2017a). In other words, this platform, thanks to its position, reduced the visibility of the competition and systematically put forward its own products and services, potentially of lower quality or more expensive. As a result, this has prevented competition and has not allowed the consumer to choose and benefit from the best service (Le Monde & AFP, 2021).

Finally, as mentioned earlier, it is also possible that digital monopolies use their power in markets where they have a near monopoly position to eliminate competition from other sectors. Amazon, with its growing power, is a good example. Indeed, after having already received a first fine for restricting access to its platform to certain sellers, Amazon has been accused by the Italian institutions of having abused its dominant position by discriminating against sellers not using its logistics service "Fulfillment by Amazon". In fact, Amazon offered sellers advantages in terms of visibility and sales prospects if they used the logistics service offered by Amazon. Therefore, by using the power that Amazon has with its marketplace, the

company could have reduced or even eliminated competition in another market: logistics services (Lombardi & Leali, 2021).

Table 1: Behaviors of digital gatekeepers affecting consumer welfare

	BEHAVIOUR	MEANING
1	Self-preferencing	Unfairly favouring own products and services to the detriment of competing businesses
2	Preferencing of a third party	Unfairly favouring a third party's products or services to the detriment of competing businesses
3	Unjustified denial of access to the platform or functionalities necessary to conduct business	Denying the access to key facilities
4	Unjustified denial of access to collected data	Denying the access to data
5	Imposition of exclusionary terms and conditions for access	Imposing exclusive terms and conditions
6	Unjustified tying and bundling practices	Selling or offering together distinct goods/services without proper justification
7	Imposing unclear or unreasonable terms and conditions on business users or on end-users	Imposing unreasonable terms and conditions
8	Unduly restricting or refusing data portability	Impeding individuals from obtaining and reusing their personal data for their own purposes across different services
9	Unduly restricting or refusing interoperability	Interoperability: the ability of a system, product or service to communicate and function with other systems, products or services

Source: Table from Ma, J. (2022) pp. 32, with data from EPRS (2020) pp. 3

3. Impact of European legislation on digital markets

Following the negative impacts of digital near monopolies on consumers, that were highlighted in the previous section, it is now interesting to analyze what the European institutions are currently doing in the field of antitrust and data protection to mitigate the negative effects of digital near monopolies. In addition to highlighting the main current regulations, we will examine the impacts of these regulations on monopolies and on consumers. Finally, we will outline the projects in development, which will probably come into force in the next few years, and which have as their main objective to strengthen European regulations in the digital field. It is important to point out that current legislation can potentially also have an impact on the current positive effects of near monopolies. However, the current literature focuses mainly on the current weaknesses of European institutions, and how they could better address them. We have therefore decided to focus on these two aspects. We believe, however, that after the introduction of the new projects being developed (part 3.4), there will be more literature in this area to analyze the impact on the positive aspects.

3.1. Key current regulations

3.1.1. Antitrust regulations

The objective of the European antitrust institutions is to establish and preserve an efficient internal market. This is achieved by ensuring fair and healthy competition between market participants. By creating pressure between players, this competition allows consumers to be offered goods and services on the most favorable terms and encourages innovation (European Parliament, 2021). Antitrust rules cover four different areas: (1) anti-competitive agreements, (2) abuse of dominant positions, (3) mergers and acquisitions and (4) state aid (European Commission., n.d.-a).

First, the European Union, through the application of Article 101 of the Treaty on the Functioning of the European Union (TFEU), prohibits all anti-competitive agreements between several companies. More precisely, Article 101 TFEU (2008) prevents all agreements, decisions of associations of undertakings and concerted practices that are likely to have a negative impact on the internal market.

This article is still useful in the digital age. Indeed, in this new era, it is possible that companies agree for example to exchange data. Through this exchange, companies can potentially "produce better products/services than they could develop based on their 'own' data alone" (Crémer et al, 2019, pp. 94). Article 101 TFEU (2008) is then relevant to ensure that all agreements between companies, especially those involving data sharing or the establishment of a data pool, do not negatively impact competition and thus the European internal market. For example, such agreements would be prohibited by the European institutions if they allow the sharing of competitively sensitive data or discourage competitors from differentiating and improving their own data collection (European Parliament, 2021).

Second, Article 102 TFEU (2008) prohibits any abuse of a dominant position by an undertaking in the European market or in a substantial part of it. More specifically, Article 102 TFEU (2008) classifies into four categories these abuses: (1) the imposition of unfair purchase or sales prices or other unfair trading conditions, (2) the limitation of production, markets or technical development to the prejudice of consumers, (3) the application of unequal conditions and (4) "making the conclusion of contracts subject to acceptance by the other parties of additional obligations" (Art 102 TFEU, 2008). However, it is important to remember that the dominant position of an undertaking is not in itself prohibited. Article 102 TFEU confers a special responsibility on the dominant undertaking to ensure that its conduct does not distort competition (European Parliament, 2021).

Article 102 TFEU is still applicable to digital near monopolies because, as already stated in part 2.4.3, companies with such a position can potentially adopt abusive practices. This law is therefore useful in preventing this type of behavior from occurring and provides a legal basis for reprimanding companies that engage in such behavior.

Thirdly, the antitrust authorities are also active, via EC Merger Regulation, in examining mergers and acquisitions of companies present in the European market and give their approval or disapproval for such actions to take place. Indeed, although mergers and acquisitions can create multiple benefits such as efficiency gains, economies of scale or synergies, they can be prevented by the European institutions if they undermine good competition within the internal market. One reason for invalidating such actions is the strengthening of a dominant position (European Parliament, 2021). The analysis and intervention of the European institutions in relation to an acquisition or merger takes place when the companies concerned are active in the

European market and when a certain turnover threshold is reached (European Commission, n.d.-e).

Finally, the European Union prohibits all state aid potentially allowing all companies receiving this aid to have an advantage that distorts competition in the targeted markets. These aids can take various forms such as subsidies or tax reductions. As a consequence, in addition to distorting competition in the country where the aid is granted, this intervention may affect trade between Member States. It should be noted that certain exceptions exist when the proper functioning and fairness of the economy depend on an intervention. Article 107 TFEU provides a legislative framework vis-à-vis such aid (European Commission, n.d.-f).

3.1.2. General Data Protection Regulation

Unlike other countries in the world, privacy is a particularly important dimension for European citizens. The right to privacy has been recognized and included in the European Convention on Human Rights since 1950. From a legislative point of view, the main regulation is the General Data Protection Regulation (GDPR) which allows for the protection of consumer data. The GDPR was put in place and took effect in May 2018 with the goal of having a more comprehensive approach in the area of personal data protection than the one the European Data Protection Directive of 1995 provided (Wolford, 2022).

In general, the GDPR intends to ensure the "protection of natural persons with regard to the processing of personal data and on the free movement of such data" (European Commission, n.d.-b). Personal data is, according to Article 3 (1) of Regulation (EU) 2018/1725, "any information relating to an identified or identifiable natural person". For example, name, IP address, or responsiveness to ads are personal data that can be collected online (Ma, 2022). Specifically, the GDPR imposes seven principles of protection and responsibilities outlined in Table 2. These principles must be followed by any business that "process the personal data of EU citizens or residents, or you offer goods or services to such people" (Wolford, 2022).

Table 2: Protection & accountability principles

	PRINCIPLE	MEANING
1	Lawfulness, fairness and transparency	Processing must be lawful, fair, and transparent to the data subject
2	Purpose limitation	You must process data for the legitimate purposes specified explicitly to the data subject when you collected it
3	Data minimization	You should collect and process only as much data as absolutely necessary for the purposes specified
4	Accuracy	You must keep personal data accurate and up to date
5	Storage limitation	You may only store personally identifying data for as long as necessary for the specified purpose
6	Integrity and confidentiality	Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).
7	Accountability	The data controller is responsible for being able to demonstrate GDPR compliance with all of these principles

Source: Welford, 2022.

The GDPR is currently accompanied by the Data Protection Law Enforcement Directive. However, this directive will not be analyzed for two reasons. First, it focuses on data protection when used by the criminal law enforcement authorities of each Member State (European Commission, n.d.-a). Second, unlike regulations that have "binding legal force throughout every Member State and enter into force on a set date in all the Member States" (United States Department of Agriculture, 2022), directives, by setting only the objectives to be achieved, leave Member States free to decide how to implement each directive in their national law (United States Department of Agriculture, 2022).

3.2. Impact on digital near monopolies

The European Union has decided to give great importance to enforce antitrust laws. The European Union has therefore multiplied the financial sanctions in recent years against digital platforms with a near monopoly. These sanctions are often challenged in court by these near monopolies (Gazzane, 2021). In the text below, several financial sanctions against digital near monopolies are presented in the field of antitrust and data protection. Then, we highlight the limitations of these sanctions and the ease with which the near monopolies circumvent the laws and transfer the impact of the sanctions to competition and consumers.

First, Google received 3 heavy fines for a total of 8.25 billion euros by the European Union in the field of antitrust (Yun Chee, 2022). All three fines have been challenged by Google in the European courts. The largest fine, imposed in July 2018, is 4.3 billion euros for abuse of dominant position. European Union laws do not prohibit digital platforms from being in a dominant position, but using their dominant position in a service or product to consolidate the dominance of their other products is illegal. Alphabet Google has been accused of using its near monopoly operating system, Android, to consolidate the dominance of its search engine, Google Search, by forcing phone manufacturers to pre-install Google Search and Google Chrome³ (Petrucchi, 2018). The American president at the time, Donald Trump, blasted the European Union's sanction, threatening that this decision would have implications for Europe. Google defended itself by advocating that its operating system, Android, created more choices for users in a dynamic ecosystem with rapid innovation and lower prices (Rushe, 2018). The second largest fine of 2.42 billion imposed in June 2017 for abuse of dominance condemns the favoring of its price comparison Google Shopping. This fine was upheld by the European Union's General Court in 2021 after a challenge by Google. Finally, the third heavy fine imposed in March 2019 of 1.5 billion euros concerns anti-competitive practices of its AdSense advertising network (Gazzane, 2021). The AdSense display offer allows publishers to display advertising on their sites. The European justice system has accused Google of anti-competitive contractual conditions that prevent other display advertising companies from entering the sector and developing (Perrotte, 2019).

³ Google Chrome can also be considered as a near monopoly platform thanks to the market share it has and the revenues it generates

In terms of mergers and acquisitions, the European Union has also imposed sanctions on digital near monopolies, including Meta. Indeed, this company has been fined 110 million euros after having provided false information on the acquisition of WhatsApp. Specifically, Meta had at the time of the acquisition, assured the European Commission that it could not combine user data between WhatsApp and Facebook effectively. However, only two years later, Meta announced the ability to "reliably perform automated matching between Facebook and WhatsApp user accounts" (European Commission, 2017b). In addition, Meta also acquired Instagram. Although this last acquisition has been validated by the European Commission and these three companies might seem to be in 3 separate markets, according to Smith (2021), these acquisitions have "consolidated Facebook's direct control over a large part of the social media landscape." This is by allowing for "ever-tighter data integration between the three platforms" (Smith, 2021). In comparison, unlike the European Commission, the FTC, generally known for taking a minimal approach to antitrust enforcement, decided to go further with these acquisitions, filing a lawsuit against Meta and requiring it to divest WhatsApp and Instagram (Smith, 2021).

In the field of protection of privacy, in 2021, Amazon has been sentenced in Luxembourg by the "Commission Nationale pour la Protection des Données" (CNPD) to a fine of 746 million euros for non-compliance with the GDPR, the largest fine in this area in Europe. The CNPD did not detail all the causes of the conviction for reasons of professional secrecy, but this penalty would be linked with the consent to collect consumer data. This fine represents about 0.3 percent of Amazon's revenue in 2020. For a breach of the GDPR, the largest penalty can be up to 4 percent of the company's worldwide revenue. Amazon had also been fined 35 million euros for non-compliance with the GDPR regarding cookie legislation (Dèbes, 2021). Amazon is not the only U.S. giant to have suffered a penalty related to GDPR compliance. In 2021, the French "Commission Nationale de l'Informatique et des Libertés" (CNIL) fined Google and Facebook 150 and 60 million euros, respectively. Like Amazon, Google and Facebook have been convicted of illegal use of cookies. The CNIL criticizes them for having set up a laborious process to refuse consent for cookies while a click is enough to give consent. The GDPR imposes a freely given, specific and unambiguous consent so the CNIL has required the digital near monopoly to modify their cookie consent systems to allow users to refuse more easily (CNIL, 2022; Gikay, 2022).

In comparison to the European Union, the United States generally has a minimal approach to antitrust enforcement. According to American legal institutions, markets tend to be self-correcting and public intervention would be counterproductive. Digital platforms are in a dominant position because they are efficient. Limiting their economic power would create inefficiencies. The American approach will prefer to wait for a new entrant to compete with digital near monopolies rather than impose sanctions. American legal institutions will enforce antitrust laws mainly when users pay more as a result of abusive practices, on the contrary European legal institutions will tend to enforce antitrust laws to also create a more competitive economic environment (Petrucci, 2018). However, in the area of data protection, in 2019, Facebook has been imposed a hefty fine of 5 billion dollars by the US Federal Trade Commission (FTC). The FTC accused the American giant of mismanagement of users' personal data. The fine, which represents 9 percent of Meta's 2018 revenue, is the largest fine imposed by the FTC on a technology company (Kang, 2019; Yahoo! Finance, 2018-2021b). This sanction highlights the growing interest at the American level and more globally of respecting personal data and the privacy of users of digital platforms (Kang, 2019). Although no requirements will be put in place for data collection and data sharing with third parties, Facebook, in addition to the financial penalty, has agreed to greater oversight on the exploitation of users' personal data. These sanctions against Facebook, are related to the FTC's investigation related to the harvesting of Facebook users' personal data by the British consulting firm Cambridge Analytica (Carrie Wong, 2019; Kang, 2019).

In general, these financial penalties remain mostly symbolic because, in addition to lasting for years in court, they do not have much impact on the behavior and sustainability of these large platforms (Deutsch, 2022; Gazzane, 2021). Indeed, these fines represent less than 10 percent of their annual revenues (Yahoo! Finance, 2018-2021a; Yahoo! Finance, 2018-2021b) and the U.S. digital giants keep making more and more profit (Kang, 2019; Pratap, 2022). Sanctions have not been strong enough to disrupt the activities of near monopolies. For example, despite the announcement of the \$5 billion sanction against Facebook, the company saw its stock price on the stock market rise by 1 percent. The sanctions are considered insufficient given the extent of the violations of the privacy of users of Facebook's digital platform. According to Senator Mark R Warner, it is essential to establish important structural reforms to really impact digital near monopolies and guarantee user protection (Carrie Wong, 2019).

In addition to financial sanctions that are more symbolic than effective, the ease with which near monopolies can circumvent sanctions shows other shortcomings of the current legal system. For example, in 2019, following the implementation of the GAFA tax, a tax on the turnover of companies whose sales on digital activities are greater than 750 million euros worldwide and 25 million euros in France, Amazon France had decided to pass on this penalty by revising upwards its sales fees and consequently transferring this penalty to its users (Les Echos, 2019).

For its part, Google also implemented various practices to defend itself and circumvent the sanctions. For example, the company threatened to revise its business model for its Android operating system and charge phone manufacturers to install Android (Dèbes & Balenieri, 2018). Google finally opted for another solution. The American digital giant decided to pass on the financial sanction to the competition. Google decided to set up an auction system to allow competitors to display their options in the choice of operating system as an alternative to Google Chrome for users. Google is therefore countering the financial penalty of the European Commission to turn it into a business opportunity. Google via this auction system found, to their advantage, a way to open its operating system to competition. The auctions will take place every year (Dekonink, 2019). In 2021, the alternatives to Google's search engine were Info.com, PrivacyWall and DuckDuckGo. Bing was not offered.

Furthermore, to offset penalties due to non-compliance with the GDPR and anticipate new EU directives to abolish the traditional use of cookies, Google announced in 2021 its intention to stop collecting user data on its Chrome browser to make a more privacy-friendly web for users (Boiten, 2021). Questions arise as to whether this new method is really a revolution for privacy. Indeed, it turns out that thanks to technological advances, Google managed to use deep learning, a form of artificial intelligence, to find other alternatives for optimizing algorithms and making predictions. Google would have patented a system using temporal data of users, data on what the user does at a specific time. This system can predict the effectiveness of advertisements without collecting a large amount of user data over a large period (Murakami Wood & Eliot, 2021). Modeling consumer behavior and preferences is crucial for digital platforms to perform targeted online advertising, and predict user reactions to advertisements. Most of the existing reaction prediction methods represents users as a set of static features (Gharibshah, Zhu et al., 2020). Gharibshah et al. (2020) demonstrated that long-term user data are not necessary to generate accurate predictions. Google's new method would be GDPR-compliant because it will

enable predictions without storing users' personally identifiable data (Murakami Wood & Eliot, 2021).

As we already mentioned, financial penalties are no longer enough. According to economist Scott Morton, fines are not seen by the leaders of Google and other digital near monopolies as an obligation to change their business practices. The economist argues that competition authorities should force platforms like Google to divest some of their activities or at least regulate them better. But she fears that the European Union does not yet have the right legal tools to do so (Miguet, 2020). Many want to better regulate near monopolies. Establishing more government regulations is inevitable (Tusikov & Haggart, 2019). Currently, one can see an increased determination of European institutions to fill their gaps in the digital domain. Indeed, in addition to having implemented the GDPR in 2018, the European Union is developing many new projects that we will discuss in section 4.4. Near monopoly companies could be forced to change their entire business models. These financial sanctions could lead to more antitrust actions with heavier consequences for digital near monopolies (Foucart, 2021; Van Dorpe, 2021). The system where digital platforms give users free access to their services in exchange for their personal data could end. Measures could be put in place to impose data sharing by the digital giants with their competitors. Digital near monopolies may have to find new sources of revenue, for example by charging users for their services (Foucart, 2021).

3.3. Impact on consumer welfare

Although the sanctions imposed by the current political rules have allowed for a growth in antitrust and privacy concerns, the impacts of these sanctions are very limited for consumers. For example, U.S. Senator Ron Wyden has argued that the fine against Facebook has little positive impact on consumer welfare given the size of the U.S. digital giant (Carrie Wong, 2019). More specifically, the negative impacts discussed in section 2.4 in relation to quality, innovation, and abuse of dominance remain despite the current laws.

First, in terms of quality, it has been highlighted that digital near monopolies allow for a higher level of data collection than in a situation with more competition. Moreover, due to time-consuming, inconvenient privacy policies and a lack of knowledge about the value of the data shared by users, this level of data collection is therefore facilitated. The current situation

remains problematic. Indeed, the current laws do not allow to disrupt the dominant positions of near monopolies. Users who have no other alternatives continue to use these platforms that exploit their personal data. The laws do not influence the practices of wide collection and exploitation of user data, so near monopolistic platforms can continue to optimize their algorithms used to make targeted advertising sometimes considered too intrusive (Etro & Caffarra, 2017). In terms of the GDPR, two weaknesses can be cited although, in addition to sanctioning companies that do not respect it, the GDPR has allowed for an increase in transparency "regarding data processing practices in their public data policies" (Kretschmer et al., 2021, pp.1), and an increase in privacy awareness. Indeed, first, most platforms still do not disclose the information required by the GDPR. In addition, platforms also still do not make it easy for consumers to understand privacy policies (Kretschmer et al., 2021). Likewise, it should be noted that many users continue to be unconcerned about the exploitation of their personal data by digital platforms. Generally, these users do not know the value of their data, and what platforms can do with them. Users enjoy using the free services of digital platforms without worrying about the exploitation of their data and without considering that other alternatives to these platforms could improve their welfare if the near monopoly left more possibilities for competitors to develop (Foucart, 2021). As a result, in the current situation, consumers are still negatively impacted by these near monopolies that benefit from more data collection than in a situation where competition would be enhanced. According to Mr. Wyden, the only way to ensure good protection of user data and thus promote consumer welfare would be to establish stronger privacy laws (Carrie Wong, 2019).

In addition, concerns remain in terms of security due to the significant value of the centralized data, but also in terms of dependency due to the lack of alternatives. Indeed, as previously mentioned, the laws currently implemented do not favor disrupting the dominant positions of near monopolies. Users, who have no other alternatives, continue to use these platforms. Moreover, although the GDPR facilitated data portability to some extent, it "has not been drafted to facilitate multi-homing or the offering of complementary services, which frequently relies on continuous and potentially real-time data access" (Cr  mer et al., 2019, pp. 8). Cr  mer et al. (2019) explains that it is therefore necessary to establish a stricter regime towards near monopolies to overcome consumer lock-in effects. We will see in the next section (section 3.4) that the European Union is developing several projects in this area.

Finally, although near monopolies are taking steps to comply with current laws, concerns remain. Indeed, near monopolies, because of their power, their size, and resources, could continue to negatively impact consumers by developing new systems and technologies that comply with current laws. For example, as already mentioned, Google has implemented a new system via deep learning to make targeted advertising without storing user data. It theoretically makes the web more respectful of user privacy. Despite the alignment with the GDPR, this method will still allow Google to know users' behaviors and predict their reactions, and thus merchandise their online activities (Murakami Wood & Eliot, 2021). Rather than targeting users individually, Google will target groups of people with similar generalized interests. This would be nearly as effective as individual targeting, and would give Google advantages over its competitors. Google will therefore continue to deliver targeted and invasive ads. Facebook uses a similar profiling system using machine learning algorithms and artificial intelligence technologies that allows targeting the identity of a group of users. This method is quite new. Its impact on users' privacy is not yet clear. Some believe that it could bring new privacy and ethical risks to the algorithms that could lead to discrimination. Users will not see any difference with this new targeting method. They will still be monitored and targeted but as a group of users (Boiten, 2021).

Secondly, sanctions have little impact on the position and structure of near monopoly digital platforms, and on the competitiveness of markets. So, current laws have little impact on innovation. More precisely, regarding acquisitions made by near monopolies, the European Commission only analyzes cases whose activities affect Member States and whose turnover exceeds a certain threshold. However, due to the intrinsic characteristics of platforms, most digital startups, rather than having a high turnover and short-term profits, will first focus on acquiring a significant user base, and developing a successful product or service. The value of the new platform and its competitive potential will therefore not be reflected in their turnover (Crémer et al., 2019). Consequently, digital near monopolies will then, using their "now-casting radar" available thanks to the data collected, acquire startups that could potentially be a competitive threat before they have a turnover too important to be analyzed by antitrust institutions, whether European or American (Affeldt & Kesler, 2021). Despite the laws, digital near monopolies continue to have a negative impact on consumers by harming competition and innovation. With few competitors, the incentive of digital near monopolies could be less because of less need to improve its technologies (Etro & Caffarra, 2017).

However, it is important to note that more and more Member States are becoming aware of their shortcomings in this area. They are therefore deciding to develop another system by introducing alternative thresholds based on the value of the transaction. Nevertheless, the practical effects of this new system still need to be verified (Crémer et al., 2019).

Ultimately, regarding the abusive practices that these near monopolies can carry out, we have seen that the main impact of European regulations was financial. The result is that the consumer, in addition to suffering the impact of sanctions, continues to be negatively impacted by these abuses of position. Near monopoly platforms discourage potential competitors, increase barriers to market entry, and reinforce user foreclosure situations (EPRS, 2020). Indeed, as already mentioned earlier, fines are not considered, by the managers of Google and other digital near monopolies, as an obligation to change their business practices (Miguet, 2020). Moreover, it has already been shown that near monopolies very often manage to transfer the impact of sanctions on consumers and on competition, the latter already being weak. In relation to this situation, we can see a growing interest in having a "regulatory intervention to correct negative anti-competitive effects and to promote competition and innovation in digital markets" (Ma, 2022, pp.31). The objective of this intervention would be to establish a definition of the concept of gatekeepers and to identify their anti-competitive behavior in order to have "proper policy instruments to establish a competitive, contestable and fair digital internal market" (Ma, 2022, pp.31).

3.4. Future projects

Although the current legislation of the European Union struggles to counter the negative impacts produced by digital near monopoly, the European legal institutions have decided to act. Indeed, several projects, complementing and reinforcing the current legislation, are being developed. They will be implemented in the coming years. More precisely, we highlight four projects. These projects are (1 & 2) the Digital Services Act (DSA) & Digital Market Act (DMA) and (3 & 4) the Data Governance Act & Data Act. These new laws will impact the near monopoly of digital platforms and the consumer welfare.

3.4.1. Digital Services Act (DSA) & Digital Market Act (DMA)

The Digital Services Act (DSA) and the Digital Market Act (DMA), part of the Digital Services Act package, are among the projects in development. In December 2020, the European Commission presented these legislative proposals. A political agreement has been reached with the European Parliament and its Member States in March 2022 for the DMA and in April 2022 for the DSA (European Commission, n.d.-g). These laws have been finally adopted by the Parliament on July 5, 2022 (European Commission, 2022c). The DMA and the DSA should however be implemented in all Member States in 2023 (Crouzillacq, 2022). These acts are a real reform of the digital space. They could lead to a disruption of digital near monopolies. These acts will lead to the implementation of new rules regarding social networks, online sales platforms and all other digital platforms active in the European Union (European Commission, 2020).

The objectives of the DSA and DMA are twofold. First, the objectives of these acts will be “to create a safer digital space in which the fundamental rights of all users of digital services are protected” (European Commission, n.d.-g). Secondly, the objectives will be “to establish a level playing field to foster innovation, growth, and competitiveness, both in the European Single Market and globally” (European Commission, n.d.-g).

Specifically, the DSA will allow consumers to understand why specific content is recommended to them, and to give them the ability to choose whether it should be included in a profiling process. In addition, it will also improve the quality of online services and products by removing illegal content as quickly as possible, tackling content that is harmful to consumers and ensuring the protection of freedom of expression. For its part, the DMA will put in place rules "for big platforms - a list of 'dos' and 'don'ts' - which aim to stop them from imposing unfair conditions on businesses and consumers" (European Parliament, 2022). At the same time, this act will introduce a definition of platforms that can be considered as gatekeepers in the legislation and will increase the power of the European Commission by let them to "carry out market investigations, allowing for updating the obligations for gatekeepers when necessary and sanctioning bad behavior" (European Parliament, 2022). Finally, the DMA, complementing the GDPR, aims to improve data portability and interoperability between platforms, especially for messaging applications, by allowing consumers to exchange different types of data such as

videos or messages between different applications (Madiega, 2022; European Parliament, 2022).

These acts could have a significant impact on the near monopoly of digital platforms and on consumers. The quality of products and services offered could be improved. Competition and innovation could be strengthened. Potential abuses of dominant positions by platforms could be better confronted.

First, the implementation of these new rules could make digital markets fairer and more open to competition. It would allow users to potentially access new, better, and more reliable online services. Indeed, these acts, through a reduction of barriers to entry such as easier access to customers by competitors, will allow the growth of smaller digital platforms and startups. These new digital platforms will better meet the needs of certain users. The European Commissioner for Competition Margrethe Vestager and the European Commission President Ursula von der Leyen said these acts will allow users to access a wide choice of services and products in a safe and responsible online environment that protects users' freedom of expression. (European Commission, 2020; European Commission, 2022a).

In addition, through the DMA, the new rules aim to remove the unfair practices of digital near monopolies and allow users not to be locked into a particular service and to have the possibility of being active on several digital platforms. Gatekeeper platforms will therefore have to adapt their technologies and business models to remove some of the barriers to other innovative technology companies, and to provide users with a greater choice of platforms (European Commission, 2022c). New rules will be put in place to remove certain practices such as prohibiting users from uninstalling certain software. If platforms do not comply with the new rules of this act, they will be under the threat of financial penalties or even under the obligation to take structural measures such as the divestiture of certain parts of the company (European Commission, 2020).

Secondly, the implementation of these acts will have an impact on consumer welfare as they will better protect users and their rights online. Particular attention will be paid to the protection of children when using social networks (European Commission, 2022c). Indeed, the DSA and DMA will include measures to fight against illegal goods, services or content online through mechanisms to report illegal content and through new traceability obligations for

digital online sales platforms. Other measures will be implemented to empower users. Users will be able to challenge content moderation decisions by digital platforms and obtain redress in case of infringement (European Commission, 2022a).

With the implementation of the DSA and DMA, digital platforms hosting at least 10 percent of the EU population such as Amazon, Facebook and Google will be subject to more control obligations, and a new supervisory structure. More transparency will be required for the exploitation of users' personal data. This new accountability framework will give the possibility to directly sanction the big digital platforms in case of infringements. Margrethe Verstager stated, "With today's agreement we ensure that platforms are held accountable for the risks their services can pose to society and citizens." (European Commission, 2022a). If digital near monopolies do not comply with the obligations of the DSA and DMA, the financial penalties will go up to 6 percent of the annual company's turnover for the DSA and 10 percent for the DMA. But in case of repeated serious infringements, digital platforms could be banned from operating in the European Union (European Commission, 2022a; European Commission, 2022c).

3.4.2. Data Governance Act (DGA) & Data Act (DA)

The DSA and DMA will not be the only new legislation aimed at improving consumer welfare. The Data Governance Act (DGA) and the Data Act (DA) have been approved in June and February 2022 respectively. These acts are expected to be implemented in 2023. These four acts have the overall objective of transforming digital in the coming years (European Commission, n.d.-d; European Commission, n.d.-c).

The DGA's objective is to "increase trust in data sharing, strengthen mechanisms to increase data availability and overcome technical obstacles to the reuse of data." (European Commission, n.d.-d). This act will aim to develop common European data spaces in several areas such as health and mobility among others. Data will be more available. Reliable data sharing can be set up for example between the countries of the European Union. Good data management linked with effective data sharing could lead to the development of innovative services and products that benefit users and consumers. The implementation of the DGA would make many economic sectors more sustainable and efficient. Regarding the impact on digital near monopolies, this new law will allow companies in digital markets to benefit from a

reduction in the costs of data acquisition, integration, and processing. This law is therefore pro-competitive, because it reduces the barriers to entry in digital markets. This could lead competing digital platforms to bring innovations, new products, and services based on data that promote consumer welfare (European Commission, n.d.-d).

The Data Act has an almost similar objective to the DGA and "is a key measure for making more data available for use in line with EU rules and values." (European Commission, n.d.-c). This act complements the DGA and aims to harmonize the rules for fair access and use of data. Unlike the DGA, which sets up the structures to facilitate data exchange and access, the DA focuses on the conditions for who can create value from user data in a fair way. The implementation of the DA will allow for the establishment of measures on data collection and exploitation to improve the legal certainty of consumers and data-generating industries. Measures will also be put in place to stop and prevent anti-competitive practices by near monopolistic platforms that impede fair data sharing. The DA should also have an impact on near monopoly platforms by facilitating data access and significantly improving portability and interoperability. Indeed, the new rules will allow users to move from one platform to another, and effective interoperability will potentially be enhanced. Competing companies will therefore have more opportunities to compete with digital near monopolies, and to innovate thanks to data access and portability rights. The DA will bring a better balance between the interests of users and data holders in line with the values of the European Commission (European Commission, n.d.-c).

As previously stated, the European response on the reflection process to understand the effects of near monopoly platforms on our societies and economies has been validated by the European Parliament and its Member States (European Commission, 2020). However, the measures of these acts, not being yet in application, do not have yet real impacts on digital near monopoly, and therefore, also on the welfare of consumers. The symbol remains powerful because the European Union is the first jurisdiction in the world to establish a complete standard for the regulation of the digital space. The European Union puts an end to the reign of near monopoly "too big to care". It will be crucial for the European institutions to monitor the proper implementation and enforcement of these new laws (European Commission, 2022c). It would be interesting to evaluate the impacts of these four acts, several years after their entry into force, to see if these new projects have really filled the current gaps in the European institutions or if

the near monopoly has once again succeeded in circumventing the rules and passed on the impact of potential sanctions on consumers and competition.

4. Alternative solutions

The last part of this research consists in identifying, regarding the negative impacts highlighted in part 2, alternative solutions to the current European regulations, which could be put in place by consumers, but also by the companies themselves, whether they have a digital near monopoly or not.

4.1. Alternative solutions from consumers

An alternative for and by consumers to the near monopoly situation of digital platforms would be to move to more cooperative markets, and to opt for other solutions. Some alternatives are already emerging. In 2014, Trebor Scholz established the concept of "platform cooperativism", and launched a movement to allow users to opt for more fair and ethical platforms (Boudes et al., 2019). The idea of this movement is to create platforms that are owned by users, and that apply a democratic operating model. Each user would be a co-owner and would have one vote. Part of the profits will be reinvested in the platform. In order to prevent financial speculation, no capital gains can be made by selling shares. Cooperative platforms with democratic control of the users have already been launched in Europe like in Germany with the platform Fairmondo. This platform sells fair trade products online. The platform listens to the debates of its users regarding the business model and the proposed ideas as well as the equity criteria (Boudes et al., 2019; The Commons Transition Primer, n.d.). Users can therefore also opt on a fairer level of data collected by the platform. However, these platforms will have to face some challenges related to governance, technological infrastructures and business models. The major challenges for developing these cooperative platforms will be "finding long-lasting economic and financial models, uniting communities, mobilizing supporters and partners" (Boudes et al., 2019). For example, it will be difficult to sustain the economic models as it is more difficult to attract investors and other support because these cooperative platforms are not lucrative.

The users of these cooperative platforms mark common opposition to the near monopoly of digital platforms. This alternative can have an impact on the quality of services and products for users by being more respectful of privacy since the user can have a say over the amount of data collected. These cooperative platforms allow users to no longer be dependent on a major

digital platform. Each platform must develop its own model thanks to their experiences and values in order to develop in their respective fields. For example, the cooperative platform Coopcycle, targeting bike delivery services, has been developed following the movement against uberization. The cooperative platform Open Food France has focused on local food distribution that supports the development of short circuits. To achieve their social and economic ambitions, digital cooperative platforms must, like any other company, find a sustainable economic model. In a situation of strong competition, cooperative platforms must offer high quality services, an easy-to-use platform with an attractive aesthetic to attract users, and create a community of committed users supporting the platform. The active participation of the community can help the platform run smoothly and develop well (Boudes et al., 2019).

Entering markets with near monopolies will not be easy for alternative platforms (Boudes et al., 2019). But these cooperative platforms could be a good alternative to curb the dependence of near monopolistic platforms. Due to the appearance of several competitors to the large digital platforms, this alternative also makes digital markets more competitive which can positively impact innovation, and bring new quality services and products to consumers. While centralization of digital markets brings many benefits, more decentralized markets will result in more privacy protection for users. Finally, there is protection from abuse through transparency, control and governance by users. These cooperative models provide an aspiration for open source and open data development, in which some cooperative platforms can share their data and algorithmic foundations for other cooperative platforms. These cooperative platforms offer more ethical management of data and algorithms (Platform Cooperativism, 2017; Platform Cooperativism Consortium, n. d.). This alternative faces a limitation: cooperative platforms are still in their early stages. They have very few users compared to digital platforms such as Facebook and Amazon. According to Sundar et al. (2018) many users would not be willing to give up using these digital platforms like Facebook because it would affect their routines.

For this alternative cooperative platform impacting the consumer welfare, or other types of alternative platforms that give also consumers more freedom over their data, to be a real source of pressure on digital near monopolies, it is necessary to have support from public institutions. Support would be provided through the correction of behavioral biases, such as the “consumer paradox” (mentioned in section 2.4.1), through the introduction of laws giving consumers more rights, but also through increased education of consumers about their data.

Indeed, in addition to implementing regulations to correct behavioral biases such as giving consumers more control over their data and increasing their bargaining power, public institutions should implement measures to improve consumer education, autonomy, and privacy skills. According to, Ma (2022), reiterating a study by The Office of Competition and Consumer Protection (OCCP), consumers are more motivated to protect themselves and "play a more active role in market transactions" (Ma, 2022, pp. 203), when they have more information and knowledge about privacy requirements (OCCP, 2009; Ma, 2022). Therefore, more educated and informed consumers on the value of the data they share with the current near monopoly could increase the pressure towards these platforms by "making rational decisions that best respond to their needs and interests" (UNCTAD, 2014, pp. 16). The new perception of the value of shared data could increase the benefits of more privacy-friendly platforms. It could decrease the difference, currently very large, of the benefits offered between the near monopoly, having the benefits of network effects, and the other platforms, more respectful of privacy. The alternatives are therefore more attractive. More educated consumers could be a driver of competition and innovation (UNCTAD, 2014).

The OECD (2019) goes in the same direction, and recommends that the education department of each public institution, as well as the authorities in charge of consumer protection, take initiatives to strengthen the digital and information and communication technology (ICT) skills of the population. OECD (2019) highlights programs already in place by some countries such as "*You Are Here*" in the U.S. which allows children to know "how advertising affects them, how they benefit when businesses compete, how (and why) to protect their personal information, and how to spot scams" (Federal Trade Commission, n.d.). In addition, the "*Better Internet for Kids*" portal, set up by the European Commission, with the same objective allows several stakeholders, such as parents or schoolteachers, to "enable them to equip children and young people with the digital and media literacy skills needed to use the digital environment in a responsible, respectful, critical and creative way" (European Commission et al., n.d.).

4.2. Alternative solutions from businesses

4.2.1. From firms without a near monopoly position

Firms without near monopoly positions in the digital domain can also play a significant role in mitigating the negative impact on consumer welfare.

First, for dominant firms in a market not yet significantly impacted by current digital near monopolies, it is in their interests to support public institutions, media, and other stakeholders with the goal of challenging digital near monopolies. Indeed, according to Matz et al. (2018), even if these companies are not directly impacted, it is important that they help limit the powers of digital near monopolies. Indeed, these digital near monopolies have an advantage that can be beneficial in many sectors, including those where they are not yet present. This advantage is the control of a significant amount of data, allowing them to predict consumer behavior. Matz et al. (2018) take the example of the real estate brokerage market. Considering the data collected by Google, if this American giant plans to enter this market, it would very quickly become the dominant company.

In addition to the support they can provide to limit the power of digital near monopolies, companies, that do not have a near monopoly position, can also modify their own business model or introduce new ones to limit the potential rapid domination of digital near monopolies in their markets. This is the case of Skywise, implemented by Airbus. This alternative is the "Airbus's response to the risk of being undermined by data giants like Google or by brand new fast-moving players in the market" (Hanke, 2019). More specifically, Skywise is a data platform that creates value for consumers. In this case, airlines aim to make "the data sharable, accessible and transparent" (Airbus, 2019), and therefore, improve their operational efficiency. This platform allows for better coordination between several stakeholders in this sector: airlines, Original Equipment Manufacturers, and aeronautical equipment suppliers (Airbus, n.d.). Skywise is therefore a solution set up to compete with the potential arrival of a near monopoly and to limit the extent of their power. However, it is important to remain attentive to this solution, but also to others more generally, so that they do not find themselves in a position of near monopoly with the same negative impacts on consumers. Indeed, in the case of Skywise, according to Hanke this platform could become the "Google of aviation, a data company that

no one could compete with" (Hanke, 2019). This situation could therefore raise some concerns regarding consumer welfare.

A second alternative that can be implemented is proposed by the inventor of the World Wide Web, Tim Berners-Lee. The inventor wants to remake the digital world. He suggests to give the control of the data back to the users. Berners-Lee, like many users, believes that near monopoly platforms have too much power and too much personal data. Near monopolistic platforms have become surveillance platforms and gatekeepers of innovation. Berners-Lee advocates data sovereignty. This sovereignty includes the self-determination of data. Users will therefore be able to decide who has the right to collect, use and store their data. Berners-Lee supports this alternative by creating the startup Inrupt, which aims to set up a system of online personal data stores. Users will have their own "data vaults". Companies will be able to request users to access their "data vaults", via a secure link, for a specific task such as delivering a personalized ad. These companies will not be able to store or sell these data. The Flemish government also hopes that this new technology will impact innovation, and create opportunities for entrepreneurs and local businesses as well as provide new services for citizens. The long-term vision of this project is to have a decentralized data market, powered by collaboration and user empowerment (Lohr, 2021; Verdegem, 2021).

Establishing data sovereignty to users and a decentralized web would break down the huge databases of the current near monopoly. Therefore, this system would "better protect users from private and government surveillance as data would no longer be stored in a way that was easy for third parties to access" (Harbinja & Karagiannopoulos, 2019). The impact of potential infringement would also be less important due to the decentralization of stored data (Stucke, 2018). In addition, the decentralized web would create more pressure on the near monopoly of digital platforms by allowing users to be less dependent on these platforms. Markets would therefore be more competitive. However, a decentralized version of the web has certain limitations. A centralized web allows governments to enforce rules and laws properly on large digital platforms. A lack of central control and access to data could be negative for user safety regarding cybercrime such as online harassment or disclosure of illegal content (Harbinja & Karagiannopoulos, 2019).

This alternative will also depend on the European institutions helping to correct behavioral biases, such as the "consumer paradox", by introducing laws that give consumers more rights

and by increasing consumer education about their data. As a reminder, educated users would have a new perception of the value of the data they share. This could increase the benefits of more privacy-friendly platforms. Another limit to this alternative is that by having more control, consumers could potentially make access to data, to smaller platforms more difficult making their development slower (Pollock, 2018).

4.2.2. Alternative from digital near monopolies

According to Matz et al. (2018), an alternative solution to the current situation, regarding the amount of data collected by near monopolies, would be for the near monopolies themselves to take steps to increase the transparency of their platforms. The alternative aims to give consumers more possibilities to control their personal data and to provide more open access to the data collected. Moreover, this solution could be profitable for the platform.

Indeed, it would be in their interest to implement such measures as this would potentially allow "to increase, rather than decrease, the public usage of and trust in their services" (Matz et al., 2018) while keeping the control of their intellectual property on the analytical algorithms. The combination of analytics algorithms with users' increased controls over their data could create a positive feedback loop between consumer trust and platform profitability (Matz et al., 2018). Matz et al. (2018) rely on the study conducted by Tucker (2014) in the area of social networks to support their statements. This study explains that by giving consumers control over their data, specifically privacy settings, digital platforms could improve their offerings. More specifically, the study takes the example of Facebook which, at the time of the study, decided to review its privacy policies to make them a little easier to use, and to give consumers more control over their personally identifiable data. This policy change has made consumers "nearly twice as likely to react positively to personalized ad content and click on personalized ads" (Tucker, 2014, pp. 557). Therefore, such a change may be beneficial to advertisers on this platform.

However, some limitations to this alternative can be cited, although this solution proves to be beneficial to the platform and to the consumers by giving them more freedom regarding the amount of data they share. The first limitation is related to Tucker's study: the latter only focused on "a particular platform with a specific business model and community of users" (Tucker, 2014, p. 557). Therefore, to be applied to other digital near monopolies, this alternative

must be accompanied by additional case-by-case analyses (Tucker, 2014). Finally, leaving the consumer more freedom does not address the concern that consumers in general are not sufficiently educated about the value of the data they share. This alternative must therefore also be accompanied by solutions that increase consumers' knowledge of the value of their data.

Conclusion

The objective of this research was, on the one hand, to analyze the positive and negative impacts of near monopoly platforms on the welfare of European end-users/consumers and, on the other hand, to highlight the impacts and limitations of European regulations, put in place to mitigate the negative impacts on the consumers of these digital near monopolies. To achieve our goal, our research sought to answer the following questions:

How digital near monopolies impact consumer welfare?

- a) How can a platform become a near monopoly, and how to define consumer welfare?
- b) What are the main impacts of digital near monopolies in terms of quality and innovation?
- c) What are the impacts and limitations of European institutions' actions?
- d) Can alternative solutions for consumers and platforms be implemented?

To answer the first question, we defined what a digital near monopoly is by identifying the main characteristics of platforms, and highlighting the forces that allow these platforms to potentially become near monopolies. We have also provided a definition of consumer welfare. Traditionally, consumer welfare is defined as "an individual's own assessment of his/her satisfaction, given prices and income" (OECD, 2002). In terms of the digital near monopoly, consumer data can be seen as the new currency that consumers exchange to access the platform.

Regarding the second question we analyzed the positive and negative impacts of digital near monopolies on consumers in terms of quality of services and products offered and innovation.

In terms of positive impacts on quality, near monopolies provide a centralization of services that allows users to skip efforts and establish a routine to satisfy their needs. Centralization also reduces information asymmetry and search costs for users. Finally, the collection and exploitation of a lot of data allows digital near monopoly to know the behavior of consumers and to offer them services adapted to their preferences.

Regarding the positive impacts on innovation, in a near monopoly situation, the economic rent of digital platforms due to their competitive advantages, is an incentive to innovate. Their dominant positions allow them to establish longer term research projects. To foster innovation,

digital near monopolies, because of their size and resources, are also more likely to create synergies and develop ideas, including those of acquired companies. The payoff of an innovation is higher in a near monopoly situation than in a competitive situation. The prospect of increased profits stimulates innovation and profits result from the market power of digital platforms.

If on the one hand, near monopolies have a positive impact on the consumer in terms of the quality of the services and products offered and in terms of innovation with the elements we have just mentioned, our analysis also shows several negative impacts.

In terms of negative impacts on quality of the services and products offered, these platforms reduce privacy and collect a higher level of data than in a competitive situation, without compensating the consumer in a fair way. Moreover, the large amount of data collected by few actors and the lack of competition leads to a reduction of quality by making a large part of consumers vulnerable, by increasing the likelihood and damage of private or public infiltration and by letting near monopolies evaluate the impact of infiltration as less important on their continued business. Finally, quality is also diminished because of the increased dependence of consumers on these platforms. This dependence makes users vulnerable to potential abuses of power and makes the impact of potential technical failures of these platforms on consumer welfare greater in a near monopoly situation than in a situation with a higher degree of competition.

Concerning the negative impacts on innovation, three impacts have been highlighted: (1) the use of a "now-casting radar" preventing the emergence of threats, (2) the creation of a "kill zone" and (3) the ability to steer the innovations of smaller players. The consequences are a reduction of competitive threats and innovations but also the power to steer the innovation efforts of smaller players, not necessarily in the right direction.

Moreover, digital near monopolies can also, negatively impact our society by abusing their dominant position. Specifically, this may discourage potential competitors from competing, increase barriers to market entry and reinforce user lock-in situations. As a result, dependency on these platforms is increased, innovative digital companies and start-ups find it difficult to bring alternative products and services to market

To answer the third question, we analyzed what the European institutions are currently doing in the area of antitrust and data protection, considering the negative impacts of digital near monopolies on consumers. In this section we have seen that the main impacts of the European institutions are financial sanctions and an increase in transparency "regarding data processing practices in their public data policies" (Kretschmer et al., 2021, pp.1) thanks to the GDPR. The behavior of near monopolies is hardly affected by financial penalties. Digital platforms find ways to circumvent the laws, and transfer these penalties to consumers and competition. However, the European institutions are determined to better regulate digital markets, and to fill their gaps by introducing four acts: the DSA, the DMA, the DGA and the DA.

Finally, with regard to the last question, this paper has highlighted that some solutions exist and could be implemented by consumers, by companies that do not have a digital near monopoly and by the near monopolies themselves. However, as the case of cooperative platforms illustrates well, a solution alone is not enough. Indeed, given the current negative impacts, a mix of private solutions combined with more regulation seems to be more appropriate to deal with the current situation.

Our research is mainly based on one of the stakeholders using the platforms in a specific geographical area: European consumers. In order to go further on this topic, it would be interesting to analyze the impacts of digital near monopolies on private actors such as vendors and advertisers. It would also be interesting to pursue this analysis in other international markets. Indeed, other regions may have different structures and consumers may have different preferences as in Asia where privacy protection in the digital domain is perceived as less important. Furthermore, related to the limitation of Tucker (2014) in section 4.2.2, due to the variety of business models that can be found in the digital domain, it would be necessary for our analysis, due to its global vision, to be completed by case-by-case analyses considering the structure and the expectations of consumers for each market. Finally, regarding the future plans of the European institutions, our analysis has highlighted the potential impacts of these acts. Therefore, it would be relevant in the future to analyze the overall real impacts of the new acts on consumer welfare both positively and negatively, by also using other sources than the European institutions.

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Appendices

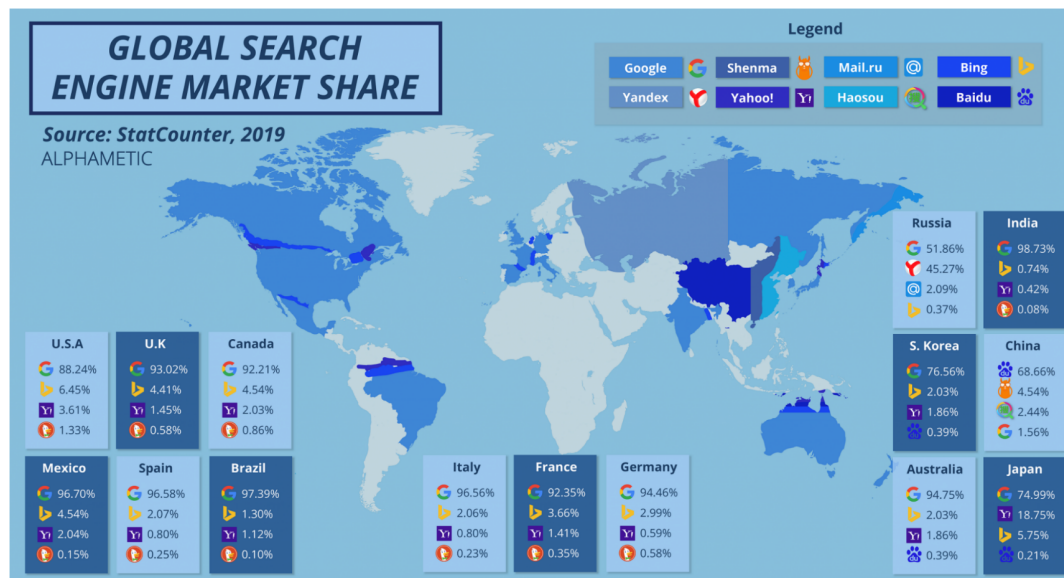
Appendix 1.1: Market share analysis

- Social Media

	Facebook	Twitter	Pinterest	Instagram	Youtube	Reddit
Europe	73.11	9.03	8.86	5.41	1.76	1.04
North America	82.17	5.6	3.99	3.59	2.49	0.63
Asia	76.47	6.71	2.49	4.35	8.68	0.45
Africa	70.29	3.5	1.54	1.37	23.01	0.11
South America	73.85	3.24	9.7	6.4	6.19	0.28
Oceania	66.64%	10.24%	6.08%	9.52%	4.51%	1.7%

Source: StatCounter Global Stats (2022-b, 2022-c, 2022-d, 2022-f, 2022-g, 2022-h).

- Search Engine



Source: Capala, (2020).

- Marketplace

United States

#	Type	Name	Region/Country	Product Category	Visits/month
1		Amazon	Global	General	2.0B
2		eBay	Global	General	688.9M
3		Walmart.com	USA	General	388.8M
4		Etsy	Global	Arts, Crafts & Gifts	238.4M
5		Target.com	USA	General	175.7M

Europe

#	Type	Name	Region/Country	Product Category	Visits/month
1		Amazon	Global	General	1.4B
2		eBay	Global	General	664.8M
3		Allegro	Poland	General	185.5M
4		AliExpress	Global	General	180.9M
5		Wildberries	Russia	General	149.9M

Australasia

#	Type	Name	Region/Country	Product Category	Visits/month
1		eBay	Global	General	61.7M
2		Amazon	Global	General	28.5M
3		Trade Me	New Zealand	General	17.7M
4		Catch.com.au	Australia	General	7.2M
5		The Iconic	Australia	Fashion	6.4M

Southeast Asia

#	Type	Name	Region/Country	Product Category	Visits/month
1		Shopee	Southeast Asia	General	342.8M
2		Tokopedia	Indonesia	General	137.3M
3		Lazada	Southeast Asia	General	128.4M
4		Bukalapak	Indonesia	General	30.4M
5		Blibli	Indonesia	General	20.6M

China

#	Type	Name	Region/Country	Product Category	Visits/month
1		Taobao	China	General	265.9M
2		Pinduoduo	China	General	234.8M
3		JD.com	China	General	160.8M
4		Tmall	China	General	97.7M
5		Amazon	Global	General	49.0M

Japan

#	Type	Name	Region/Country	Product Category	Visits/month
1		Amazon	Global	General	555.8M
2		Rakuten	Japan	General	544.3M
3		Mercari	Japan, USA	General	75.2M
4		ZOZOTOWN	Japan	Fashion	43.0M
5		PayPay Mall	Japan	General	31.3M

India

#	Type	Name	Region/Country	Product Category	Visits/month
1		Amazon	Global	General	295.8M
2		Flipkart	India	General	167.4M
3		Myntra	India	Fashion	32.9M
4		Snapdeal	India	General	15.1M
5		Shopclues	India	General	5.9M

Latin America

#	Type	Name	Region/Country	Product Category	Visits/month
1		Mercado Libre	Latin America	General	667.7M
2		Amazon	Global	General	169.0M
3		Americanas	Brazil	General	129.6M
4		Casas Bahia	Brazil	General	83.6M
5		Shopee	Southeast Asia	General	40.7M

Africa

#	Type	Name	Region/Country	Product Category	Visits/month
1		Jumia	Africa	General	23.3M
2		Takealot.com	South Africa	General	10.5M
3		Souq	Middle East	General	10.0M
4		Konga	Nigeria	General	2.3M
5		bidorbuy	South Africa	General	1.9M

Source: Merton, (2021).

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