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Are the European merger guidelines appropriate for a data-oriented economy?

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Introduction:

Oil has been one the most crucial industries, if not the most, for more than a century. But as our economy shifted towards oil in the past, it is now clearly entering a new curve and putting technology and data at the center of the equation (TheEconomist, 2017). The digitalization era created an influx of data. It is around us and touches every aspect of our life because no matter what we do, we are connected to the internet or to applications generating information/data or in contact with technology (A.Grunes & M.Stucke, 2015). Data has taken control of such a big part of our lives, but this is not restricted to consumer's data, Big data is used in different industries, such as aviation, to get the upper hand on a firm's rivals (A.Grunes & M.Stucke, 2015).

This opinion is commonly shared by international institutions, such as OECD *"big data now represents a core economic asset that can create significant competitive advantage for firms . . .."* (OECD, 2014). Furthermore, an MIT study concluded that the more a firm is oriented towards data, the better its results will be compared to their counterparts, on average they are "*5% more productive and 6% more profitable*" (A.Grunes & M.Stucke, 2015)[1]. Data became so valuable competitively, that firms fight each other to merge and acquire new companies and the opportunities they represent. In a 5 years span, mergers and acquisitions (M&A) doubled[2]. But data, if not controlled by a legal framework, can lead to many anti-competitive effects. It is the role of the antitrust authorities to acknowledge it and to develop rules and tools to prevent any distortion in the markets and protect the consumers from harm (A.Grunes & M.Stucke, 2015).

This paper aims at determining the relevance of the European merger guidelines within the rise of data and technology in the economy. It will be split in several parts. The first chapter will consist in a short reminder of the motivation behind firms' decision to merge, as well as the pros and cons, as discussed by P. Stockhaus in his paper from the University of Stockholm.

The second chapter will be an overview of the European and American merger guidelines to offer a benchmark allowing to compare two most prominent merger antitrust

[1] EUR. DATA PROT. SUPERVISOR, REPORT OF WORKSHOP ON PRIVACY, CONSUMERS, COMPETITION AND BIG DATA 1 (2014) https://hbr.org/2012/10/big-data-the-management-revolution

[2] *UR. DATA PROT. SUPERVISOR, REPORT OF WORKSHOP ON PRIVACY, CONSUMERS, COMPETITION AND BIG DATA 1 (2014)* https://secure.edps.europa.eu/EDPSWEB/webdav/site/mySite/shared/Documents/Consultation/Big%20data/14-07-11_EDPS_Report_Workshop_Big_data_EN.pdf.

authorities worldwide. This will be done through the analysis of their respective official merger guidelines. This second chapter will also present the economic tools used by the European Commission to assess the possible anti-competitive effects of a merger case and how they determine its clearance or denial, according to the official horizontal and non-horizontal merger guidelines.

Chapter three will consist of the analysis and criticisms made towards the actual system and its relevance. We will refer to the concept of the blind spot concept introduced by Wu (Wu, 2018) in his paper *"Blind Spot: The Attention Economy and the Law"* or the new notion of market shares (Valletti & Prat, 2018) in " *Attention Oligopoly*", and many more.

The fourth chapter will be dedicated to several cases analysis to determine if the issues highlighted in the discussion above stands in real life scenarios as well as to determine the position of the European Commission. The Facebook/WhatsApp, Apple/Shazam, Microsoft/GitHub and Microsoft/Skype merger cases will be the ones scrutinized.

Finally, a conclusion will be drawn in lights of the findings of this paper and will open the debate for further discussion. The objective will not be to depict the system as black or white but rather to offer a summary of the economic thinking on the matter and to bring forward possible path for improvement.

This conclusion will put forward the lack of consistency and uncertainty surrounding the European Commission's decision making as well as the limitations created by the turnover threshold. It will highlight the difficulty to determine a product and geographical market in data-oriented sectors, using the current available tools. Indeed, the growth pace, the changing business models and the way such firms create value, represent a challenge for the Commission. There is a call from Member States to enlarge the scope of competition policy and bend the rules to allow for European champions. It will also bring to light the limits of the market shares metric when assessing data driven firms, as well as the competitive implication and interconnection of data within industries and lastly, the importance of the burden of proof in this sector.

Chapter I: Why do firms merge

Mergers and acquisitions are executed for several reasons. Though this section does not intend to provide a full historical explanation of merging dynamics but is rather designed to highlight and refresh the main drivers of M&A as they will apply to technologically, digitally and data-oriented companies as well.

The first driver is "*economies of scales*". It can either be internal and allow for a less costly production for example and create barriers to potential competitors' entry. Or either external and leading to an increased market power making the merged entity inevitable on the market and able to negotiate better deals with other actors in their supply chain (P.Stockhaus, 2015).

The second driver is "*synergy*". This driver can be divided into two categories, one aimed at increasing revenues, the other at producing costs synergies. The former results in a higher volume of revenues through "*cross-selling*" (P.Stockhaus, 2015), for example, which is the possibility for the merging companies to sell their products to the customers of their merging sister firm. Higher volume or revenues could also be reached by gaining a higher market power and strengthening bargaining abilities that can both lead to higher prices. The second form of synergies, costs synergies, enables costs reductions of the merged entities by combining their knowledge and facilities (e.g. only one big R&D, IT, HR departments). It also relates to the ability to solve the double marginalization problem (to charge twice the markup to consumers) in vertical mergers (P.Belleflamme & M.Peitz, 2014). In addition, the possibility to develop a smaller firm by using the network and know-how of the larger one, can create extreme synergies that, the acquired company (the start-up for example) would not have reached alone (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

The last driver is the "*operational improvement*" (P.Stockhaus, 2015), which is the ability for the acquiring firm to lead more efficiently the one acquired. It usually takes place when there is a discrepancy between the management expertise of both entities and leads to replacing the management team by most experienced members. This is very close to the synergy's gains explained above in presence of start-ups.

A merger has his pros and cons. As Bradley and al explained, merging companies are, on average, evaluated higher than the combination of both independent entities, pre-transaction

(M.Bradley, A.Desai, & E.Kim, 1988). The danger however lays within the fact that M&A do not require "*Skill, foresight and industry*" but rather financial means (L.Hand, 1945). Mergers, if unchecked can lead to distortion in the market and of the competition. It is the European Commission responsibility to assess if synergies and efficiency gains are passed on to consumers. Regulations strive to maintain a dynamic competitive smarket where innovation, diversity and price competitions are the key elements to success (M.E.Porter, 2002).

Chapter II: Merger Guidelines

In this section, we will describe the European as well as the American antitrust authorities' merger guidelines. The reason behind the analysis of the American procedures, is to offer a point of comparison to the European way of thinking. Both authorities seem to be the most relevant in our study related to technology, data and digital because of the numerous cases they had to face until now, but also because they both have had a long tenure, with merger guidelines being founded in the United States. Europe and US being two big innovation nests worldwide it is only normal to spend some time describing their approaches.

Preserving competition from being distorted is one of the key engines of the two chosen institutions. Europe considers that protecting competition is desirable as it enables to reach efficiency and benefits the society They also represent the interest of the weakest and act towards their protection, promote and foster employment and achieve other greater objectives (European Union, 2012). That being said, it is important to remember that **"***Free competition is not an end in itself but rather it is a means to an end"* (Kroes, 2006) enabling the growth of economic areas**,** as well as the growth of consumers and population's welfare (Ghellinck E. D., 2017).

There exist three main concerns when analysing competition policy. The first one is the prevention of anti-competitive behaviour between firms. The second one is the abuse of a dominant position, and the third one is the anti-competitiveness of merging firms (Ghellinck E. , 2017). This section will focus on the tools and methods used in the cases review. We will then try to pinpoint some aspects that might be inadequate for the targeted sectors and offer some criticisms as well as hints for possible solutions to the merger analysis in technologically, data and digitally driven market. The goal of the section is not to pretend being able to solve every issue and define the right path to follow, but rather to gather personal opinions with economical ground to back it up, as well as other economists thinking to try to develop and foster the economic thinking on this, oh so important, transition that we are experiencing in our daily lives and be aware of the extent to which those companies can impact the way the world is going to be shaped.

2.1. The European merger guidelines and procedures:

The European Commission (EC) is the competent authority regarding mergers and acquisitions in Europe. In general, the EC only analyses the important merger cases, what they

call cases or firms with an "*EU dimension*" (European Commission, Merger control procedures, 2013), meaning that to be reviewed, firms must attain a defined turnover threshold. There exist two cases in which a firm can reach this turnover threshold:

1. The joint worldwide annual turnover of the companies involved into a merging process has to be over €5 billion. In addition, European scale turnovers of the at least two firms have to be above €250 million (European Commission, Merger control procedures, 2013).

2. For all the undertakings involved into a merging process, their individual worldwide turnovers have to be above €2.5 billion threshold. In addition, the joint turnovers of all the entities in at the very least three European countries part of the European Economic area (EEA) have to be over €100 million. At least two of the companies involved in the merger have to generate a turnover of €25 million or more in all the three countries selected above and these two companies must also have a minimum annual turnover of €100 million in European (Slaughter & May, 2018)

It is important to note that, the EU dimension will not be attained if "*each of the firms achieves more than two thirds of its EU-wide turnover within one and the same Member State*" (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004). In that case, the responsibility to determine if the proposal has to be reviewed or not will fall under the Member State's antitrust authority in which the turnovers are achieved.

As just mentioned, if firms do not meet the requirements above while merging, they will fall under the concerned Member State antitrust authority's guidance. To ensure a qualitative review a "referral mechanism" is at the disposal of the parties involved allowing them to switch between Member State and EC authorities (European Commission, Merger control procedures, 2013).

Let's now have a deeper look into the procedure that such merging firms have to go through and have a step by step approach to try and detect any cracks or flaws in the EC methodology.

The first step is the *Notification of the merger* to the EC before anything is put in motion. Of course, this only applies to the cases with EU dimension as we explained above. If a merger takes place between firms not working in the same or linked markets, or if the market share in a linked market is non-significant following the strict market threshold criteria established by the EC, it is likely that the merger will not be of any harm to the competition. It will then only be reviewed under a simplified merger procedure (European Commission, Merger control procedures, 2013).

The second step is the "*Phase 1 Investigation*" (European Commission, Merger control procedures, 2013). The EC has 25 working days to scrutinize the case and determine whether or not it can be dealt with in this phase or if it has to be carried out to the next one. The investigation phase generally solves 90% of the applications. During the review, the EC may ask for complementary information to the firms or to third parties. They could also ask competitors and consumers' opinions throughout the investigation (Slaughter & May, 2018).

Once the investigation is over, the European Commission informs the parties of its decision. Two outcomes are possible: (i) the merger is cleared: totally or under "*remedies*" if competition issues appeared during the analysis; (ii) the merger case raises a red flag competition-wise and the EC decides to proceed to a third step which is the "*Phase 2 Investigation*" (European Commission, Merger control procedures, 2013).

What is intended here by remedies, are propositions made by the firms to cope with the anti-competitive concerns of the commission. It can be seen as a commitment device and a way to modify the application in order to seal the deal. Of course, those remedies will be analysed within 10 working days by the commission and an "*Independent Trustee*" will be appointed to the task to execute a follow up on the promised remedies (European Commission, Merger control procedures, 2013).

The Phase 2 Investigation is a detailed examination of the implication that a merger would have on competition. It is a time-consuming process (90 working days) only open when the merger fails to clear all the anti-competitive concern that the EC might have raised. It requires in-depth data and analysis about the companies, the market and firms within the said relevant market. An important point of this phase is that the EC will weigh the efficiency gains presented by the merging compagnies and their positive effects on consumers, against its anti-competitive concerns and see if the former outweigh the later. The efficiency gains must be "*verifiable"* by the EC, they must be "*merger specific"* (meaning that they can't be achieved in

another way than by merging) and they must be "*passed-on to consumers"* (European Commission, Merger control procedures, 2013).

After such analysis, the EC has to give its "*final sentence"* to the compagnies. The merge can be cleared totally or under conditions (remedies). It can also be refused if the EC considers the competition is too much at risk. In the latter case, the antitrust authorities (AA) sends a "*statement of objections (SO)"* to which the merging firms can reply within a certain delay and be granted an verbal hearing (European Commission, Merger control procedures, 2013).

Lastly, the European Commission has a referral system that enables the antitrust authorities of each Member State to ask for a specific case to be reviewed by the EC under some conditions. For the burden to be transferred to the EC, it has to be a "Europe-large" case. If it does not raise any red flags threshold-wise, the review application has to be sent by at least three Member States (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

It is worth noticing that the burden of determining if a merger raises anti-competitive concerns and its likelihood to have adverse effects, is on the reviewing institutions. Companies only provide the necessary documents and let the European Commission decide whether or not it opposes itself to the proposal. At no point the involved undertakings have to prove the soundness of their intentions, going as far as having the opportunity to require a case to be further analysed and contest the EC decisions (European Commission, Merger control procedures, 2013).

2.2. The American merger guidelines and procedure:

On the other side of the Atlantic, the United States (US) have a slightly different, but rather interesting approach to their merger guidelines as they use another threshold approach than the European one while they use similar tools to assess the anti-competitiveness nature of a merger. This will allow us to have a wider view on the problem we're dealing with.

In the US, the mergers are supervised by two entities: The Federal Trade Commission (FTC) and the Department of Justice (DOJ). They jointly act upon submitted proposals to protect consumers' interests from a rise in prices, from hindering of the quality of goods and services, but also from less competition or innovation (Federal Trade Commission, Merger Review, 2019). The antitrust authorities review cases under a very well-structured organisation following the Hart-Scott-Rodino (HSR) Act of 1976 that is updated yearly (Federal Trade Commission, HSR threshold adjustments and reportability, 2019). This act is an amendment to

the already existing Clayton Antitrust Act of 1914, which in return, was a reaction to, Sherman Antitrust Act of 1890, that has become inefficient nowadays.

Like the Europeans, the American antitrust authorities also have a selection process (Federal Trade Commission, Merger Review, 2019).

"*The pre-merging proposal form*" is the Step 1 in the US procedure. Firms have the obligation to pre-notify their intention to merge via a "*Fill in report*" (Federal Trade Commission, Merger Review, 2019). This requirement springs into action when the value of the transaction is of $90 million and more. For this purpose, there exists a test called "Size of the transaction test" created to analyse deeply and in the framework of the law, what is really the size of the acquiring entity. In addition, the merging parties must have a certain size: the yearly sales they generate must exceed $151.7 million, and the total assets they possess must exceed $10 million (updated yearly as the GDP changes). Other tests exist such as "*Size of Person test*" to determine the size of the players and whether they might have a big impact on their market if the merger takes place. In general, everything that might affect the American's markets (Federal Trade Commission, HSR threshold adjustments and reportability, 2019).

This procedure yields a filing fee that will depend on the size of the merger. According to the FTC merger guidelines, it goes from around $45 000 to $280 000 for the larger cases.

The pre-merging proposal form is issued to both the DOJ and the FTC. Only one of the two agencies will however review the case and will not only base its decisions on the forms, but also through commonly accessible information on the merging entities, the market and their role in it. This process is called *Step 2* (Federal Trade Commission, Merger Review, 2019).

Step 3 is the end of the waiting period. After reviewing the available items, one of the two antitrust authorities will have to give its verdict. It can decide to terminate earlier the waiting period and grant its authorization to continue with the deal. It can also just let the waiting period expire and let the deal continue. Or finally, it can also block the transaction and request more information to the merging entities through a "*Request for Additional Information*" and therefore send it into step fourth. The additional information may come from any entity affected by the proposal, from competitors to consumers (Federal Trade Commission, Merger Review, 2019).

This extended waiting period is called *Step 4*. Within 30 days, the reviewing authority will consider the secondly filled requests from both merging companies and see if they comply

with the criterion asked. The goal of step 4 is to shed light upon any dark area of the deal that might have anti-competitive effects on competitors, consumers or even innovation and intellectual property.

Finally, *Step 5*, offers once again three possible results. In the first outcome, the investigation is cleared, and the deal can proceed. In the second one, a bargaining process starts between the AA and the merging firms to find some sort of agreement. It happens when anti-competitive concerns are still raised, and remedies are needed for the deal to go through. In the third outcome, the deal comes to an end and the authorities prevent any merger to happen because the threat is too great, and the benefits do not outweigh the costs. To do so, a "*preliminary conjunction"* is sent to the federal court by the AA.

We can observe that the "*burden of proof*"[3] comes from the reviewing authorities rather than the merging firms (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019). The difference here being that, in case of a refusal, the proposal goes to trial and is to be accepted or rejected by court. This is why Americans' AA tend to be stricter on the thresholds and rules than the Europeans, leaving less space for case by case exceptions.

2.3. Economic tools to asses anti-competitiveness:

To assess the anti-competitiveness impact of a merger and acquisition, the antitrust authorities need to use some specific tools, economic models and methods. These tools do not always give a straightforward answer but rather help to picture the actual state of a market and to determine the outcome of a transaction. In this sub-section, we will only discuss the relevant tools used in the data and technologies area.

The analysis will be divided in two, according to the type of merger. Although horizontal mergers represent the majority of the cases (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019), vertical mergers will also be discussed in our analysis as one could think that they are not uncommon in digital market, because of its fast-developing and competitive merging nature.

The information will come from both European and American merger guidelines as they share most of their methods and tools. It will allow us to have a general view on what both entities use to enforce their rules and determine if there is any difference in addition to the transaction value-based threshold notification process used in the US.

[3] This concept will be developed in a section later on

2.3.1. Horizontal mergers:

The tools used depend on the type of evidence the authorities want to obtain. They may vary from analysis, interviews and comments on existing cases to empirical tools adapted to the reviewed case. Still the goal of the European Commission will always be to define the relevant markets product-wise and geographically, and to analyse the competitive implication of the merger, in order to determine if a "*Significant Impediment to the Effective Competition*" (SIEC) is induced by the merger. The information are provided by (European Commission, Horizontal Merger Guidelines, 2004) and the (FTC & DOJ, 2010) official horizontal merger guidelines.

2.3.1.A. Past and related experiences comparison:

When analysing a merger or acquisition, AA might find interesting to look at previous experiences and judgments. This base of comparison is similar to a case-law type of manoeuvre, where the legal entities search through similar historical or reference cases to justify to their decisions. It helps determining markets, tools and actors involved in the process. This option also allows to collect information from markets that are alike, which for example would provide clear information on price changes or state of the competition in general.

2.3.1.B. Defining the relevant market:

When it comes to mergers and acquisition, assessing the relevant market is an important step. This is mainly done by analysing the substitution response of customers to a product following a change in price, quality or even service. Substitutes are generally present on the market, but what matters characteristics gap between the substitute and the merger product, its geographical accessibility and the customers' perception towards it. Antitrust authorities have to make a trade-off as defining a broad geographical market has an impact on the market shares of the participant firms. This is why AA are more likely to exclude some substitutes by defining a smaller geographical area. But in doing so they expect to really grasp the effects and implications of the mergers.

To determine the relevance of the products and the geographical area, the authorities possess a few tools.

The first being, the "*Hypothetical Monopolist Test"* which helps determining the constitution of the relevant market by evaluating several substitutable products. If the merging entities apply a "*small but significant and non-transitory increase in price*" (SSNIP), this change should be captured by an increase in the consumption of the substitutes. Once all defined, the market is completed (FTC & DOJ, 2010).

The hypothetical Monopolist Test does not restrain its analysis to the defined direct market. In some instances, it might be very useful to see the implications on more distant substitutes, but this could be at the expense of precision.

When relevant and possible, the "*Critical Loss analysis*" generally accompanies the SSNIP test. The critical loss highlights the number of units lost (goods, users, …) a firm can face when raising its price to achieve at least the same profit margin as before. The profit is increasing if the expected losses are lower than the critical loss.

When it comes to geographical area (location), the magnitude of the market can be determined from the supplier or the consumer side. Defining it with respect to the suppliers makes sense when the customers actually purchase their products directly at the suppliers' locations. Defining the markets with respect to the customers' location may be the better fit when firms are able to differentiate their customers according to their geographical position.

Once those two elements are well defined (product and localisation), the legal bodies can identify the *market participants* and compute the actual *market shares* of the relevant entities before (and possibly after) the deal, but also the market shares of their competitors in order to determine the *market concentration*.

The *market participants* are defined as all the firms making profit on the market, the vertically integrated firms, the firms that are not yet on the market but could rapidly enter and become profitable fastThe firms that sell relevant products to non-relevant customers could also be seen as potential fast enterers.

Turning to *market shares*, only the firms producing in the previously defined market will be considered. In some exceptions, firms outside the market might get their market shares computed to better reflect to competitive situation of the market. This exercise is based on the comparison between an older state of the market and recent movements in its constitution in order to identify the evolution of the merging firms. It enables to determine if firms under-state their position on the market, especially when in possession of a new technology crucial to the long-term viability of the market. Market shares are determined depending on the most representative and relevant data available about the industry scrutinized, generally revenues or production capacity/flexibility, made in the defined market to reflect the power of attracting customers.

As market shares alone are not very precise, the *market concentration* will also be determined to allow for a general conclusion of the market power held by each company. It is calculated both before and after the possible merger. Market concentration is really useful when market shares have been steady and available over a long period of time in an industry, because if firms hold the same shares after ups and downs in their sectors of activity, then the analysis is bound to reflect reality. On the other hand, a market in which firms hold a lot of market shares that are susceptible to move at any given shock in the market, could be seen as competitive.

The *Herfindahl-Hirschman Index* (HHI) is used to express market concentration. The HHI consists in the sum of the square of each firms' market shares (European Commission, Horizontal Merger Guidelines, 2004). There exist three ranks within the HHI classification:

- Unconcentrated Markets: HHI < 1000
- Moderately Concentrated Markets: 1000 < HHI < 2000
- Highly Concentrated Markets: HHI > 2000

Once categorized, the legal bodies will determine the magnitude of the changes induced by the merger taking into account the following classification:

- Small change in the concentration: If the increase is less than 100 HHI points, the merger is likely to be harmless competition-wise and will not require any additional attention.
- Unconcentrated markets: If the merging firms remain in an unconcentrated markets, then the deal should be cleared as it is not likely that any negative competitive effects would emerge.
- Moderately concentrated markets: An increase of the HH index (delta) of more than 250 points in a post-merger assessment, will raise the EC attention as to potential anti-competitive effects.
- Highly concentrated markets: While being in a highly concentrated market, a rise of 150 or more points of the HHI from a merger, will require deep and precise analysis from the legal entities as in these cases, an increase in market power is likely and the deal is set to be refused.

An important difference between the United States and Europe appears here. While in the EU there is no mention of it, in the US, if a post-merger situation reaches the third category, the merging entities have the responsibility to prove the soundness of the transaction. A difference worth noticing as a part of the burden shifts side. In addition to that, the US have a

wider category of unconcentrated markets with the HHI going from 0 to 1500, moderately concentrated from 1500 to 2500 and highly from 2500 and above. They also tolerate bigger variation of the index, or delta, before intervening: around 250. Those wider categories allow for more cases to be reviewed but also for more competitive space for the firms to express themselves (FTC & DOJ, 2010).

The goal of this categorization is not to set in stone which mergers are likely to be harmful, and which are not but rather to give a quick indication, based on sizeable scale, as to whether one should worry about the anti-competitive effects of a merger. One thing is certain though, the bigger the increase of the Herfindahl-Hirschman Index after the merger in terms of points and size (delta), the higher the probability for anti-competitive effects to appear and a call for scrutiny by the relevant institutions (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004).

2.3.1.B.1. Targeting and discrimination of consumers:

Another concern of the reviewer institutions are the two phenomena called price discrimination and customer targeting. The mechanism consists in offering different prices to different types of customers for a similar product. It requires the ability to differentiate between customers, but it also requires that customers themselves cannot react to that price increase by purchasing the same product through other means, to get a lower price. If firms have such possibility, it affects the way the market is defined, the shares but also the competitiveness. When scrutinizing a merger, being able to identify such practice (pre or post-merger) would be of very high importance because a price increase for a category of customers only, could be profitable for a firm as price increase independently of the type of customer would just create a movement of substitution from them. Therefore, when price discrimination or targeted customers practices are feasible, the legal bodies will analyse the competitive effects on each type of customers (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004).

2.3.1.B.2. Other important potential effects:

In this sub-section, we are going to quickly review the other important aspects examined by the agencies that are relevant to technologically, data and digitally driven industries.

When firms are merging, *unilateral effects* can arise. This notion includes all types of effects that are not only linked to the players or to the state of the relevant market, but rather more specific items such as *"Pricing of differentiated Products"* and their "*unilateral effects"*.

Additionally, we will look at the *"Innovation and Product variety"* side of the equation (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004). Finally, we will also look at the "*Efficiency gains*".

Let's begin with the "*Pricing of differentiated products".* The type of products that the firms sell is very important. What is intended here is how close of a substitute is one product to another. When merging, there generally are 3 types of outcome: (i) the two products stay on the market, (ii) one of the two is withdraw from it, (iii) both disappear for a new one. The problem appears when, in presence of differentiated products, the closest substitute of the first merging firm's product is the product of the second merging firm. In this set-up, a rise in price in one or both products could lead to a higher profit for the merging firms without any real defence mechanism from the consumers' side. This is called a "*Unilateral price effect"*. Therefore, analysing the degree of competitivity between the merging firms and their products is a key element. For that purpose, the *"diversion ratio"*, which is the number of sales a firm would lose following an increase in its price to the benefit of the sales of the second product, has been developed by AA (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004).

Turning to "*Innovation and Product variety"*. Innovation is driven by competition, although one might argue that the relation also goes the other way around. Nonetheless, when in presence of mergers, the AA have to be careful that the post-merger situation does not hinder the incentives to innovate from the mergers and competitors. Two phenomena are most likely to be watched out by the authorities:

1) A reduction in the incentives and efforts to continue developing the products that were already being worked on.

2) A decreased of the effort made in the development and research of new products and innovations.

The first phenomenon is likely to happen if the investment in a new product was made to steal shares and sales from its competitor. If the firms merge, they may have less incentive to continue developing this new product since they already joined their market shares.

The second phenomenon could arise if one of the two merging entities has the knowledge to develop a new product that would directly lessen the position of the other merging firm on the market.

This is why AA have to analyse the incentives to innovate before and after the merger. They also take look at the combination of two small firms active on the market that have the capacity to greatly innovate, and considered as representatives of the whole market, in order to try to quantify the effect the merger could have on them.

The AA will also try to determine whether the merger enables new and better possibilities for innovation that would not have been feasible otherwise: the so-called S*ynergies* enabled by bringing together the forces of the merging firms. At the opposite, the merging firms may stop offering a product once the deal is through. Less product variety is however not necessarily anti-competitive as it can lead to a better positioning from the merging firms to consumers by offering more differentiated products than their competitors (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004).

Lastly, "*Efficiencies gains"*. Efficiencies are sought because of competition. When merging, firms may achieve new efficiency levels through mixing their knowledge and complementary assets. This leads to lower prices, higher quality, improved services, and the appearance of new technologies and products to appear.

In this context, the legal bodies have to analyse to which extent the efficiencies are "*merger-specific*" or if they could be attained through other means by the compagnies (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004). Efficiency is a difficult concept to grasp and analyse. The claimed gains are indeed hard to quantify per se because it requires to compare hypothetical situations and to gather information that only firms hold and do not necessarily disclose. Therefore, it is in the merging entities' interest to provide tangible information to the AA about how they expect efficiencies to happen and how precisely this can be verified, but also how it will increase their willingness to compete through those efficiencies' gains.

If the agencies consider the advanced efficiency claims as "vague, speculative or not verifiable", they will not be acknowledged in the case review. Here, the role of the known effects from past experiences may help the agencies to make a decision.

The AA call *"cognizable efficiencies"*, the merger specific efficiencies that do not spring from anti-competitive behaviour. The main objective of the legal bodies will be to quantify those cognizable efficiencies and make sure that the majority of them will be passed on to the consumers, but also that, in the post-merger world, the merged firm will not able to

harm the consumer thank to its newly acquired position. For the efficiency claims to really matter, they must outweigh the possible anti-competitive effects by a large margin.

2.3.2. Non-Horizontal mergers:

It is important to mention that even though non-horizontal mergers only account for a small fraction of the European Commission and American antitrust authorities' submissions, firms may still yield concerns in both horizontal and non-horizontal aspects of the competition.

There exists two variety of non-horizontal mergers, *vertical mergers* or *conglomerates*. Vertical mergers describe firms "*operating at different levels of the supply chain*" that want to merge. While conglomerates describe firms willing to merge but that operate in different markets without having vertical nor horizontal tides (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004).

Vertical or conglomerate type of mergers are per se less harmful than horizontal mergers, because they usually do not reduce competition in the same market but rather in the relations between upstream and downstream markets. Furthermore, non-horizontal mergers are known for providing efficiency gains through the gathering of complementary products/services and knowledge, which is likely to be passed down to consumers through lower prices or better quality for instance. One example could be that as it solves the double-marginalization problem, they are generally regarded as good competition-wise (D. B. Hoffman, 2018).

Nonetheless, two major concerns raise AA's attention when it comes down to this type of merger: *foreclosure* in the non-coordinated effects side and *coordination* on the other side. Before investigating for those two possibilities, the AA will also have to determine the size of the market, the concentration and the shares.

2.3.2.A. Foreclosure:

Foreclosure occurs when, following a merger, access to a part of the supply chain becomes harder, limited or even suppressed. Hence, decreasing the incentives or opportunities for the firms on the market to compete. Foreclosure is likely to restrain entry of new firms and development of existing ones. There exist two types of foreclosure, *input foreclosure* and *customer foreclosure*. The first occurs when access by a downstream firm to a vital input is either denied or constrained under very advantageous conditions for the integrated firm.

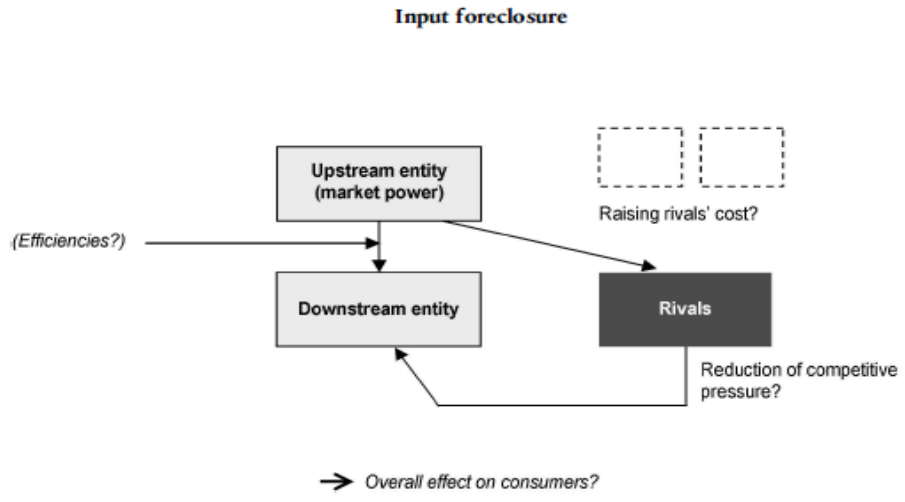

Figure 1: Input foreclosure[4]

The later occurs when access by an upstream firm to consumers is denied by the downstream firm that refuses to buy supplies from its upstream competitor, meaning that this competitor cannot access consumers anymore.

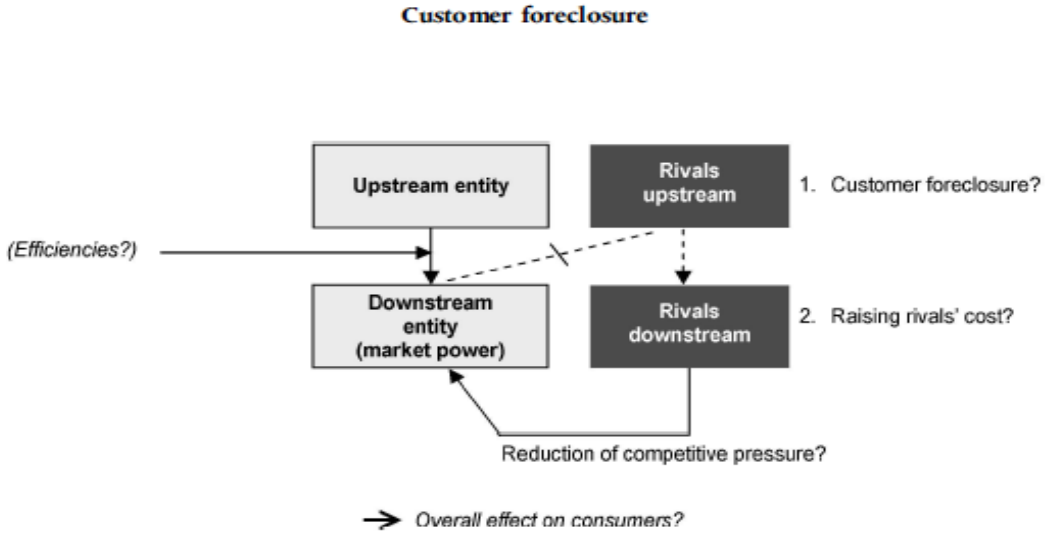

Figure 2: Customer foreclosure (European Commission, Guidelineson the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2008)

In both types of foreclosure, the legal bodies will have to assess the ability to foreclose, the incentives to do so and finally the effect of a potential foreclosure on the consumers because if it is not an anti-competitive move per se, it can lead to an increase price in the first case of

[4] Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings - 2008

input foreclosure or raise rivals costs in the case of customer foreclosure (European Commission, Guidelineson the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2008).

2.3.2.B. Access to sensitive information & coordination:

There are two potential effects of non-horizontal mergers. Firstly, the ability to have access to classified information about firms either upstream or downstream. With this information a merger could, for instance, decide to set price less competitively by knowing the cost of its downstream rival.

Secondly, merging can allow for easier and more sustainable coordination among firms on a relevant market. These two effects could lead to a deterioration of the number of entries in the market and of its general accessibility and thereby distort competition (European Commission, Guidelineson the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2008).

Chapter III: Criticisms and remarks when assessing technological, data and digitally driven industries:

When trying to assess the effects of technologically, digitally and data-oriented companies' mergers, some key factors are to be accounted for: their growth pace, innovation and their intertwinement with almost every sectors of the economy. The goal of firms active in these sectors is more often to discover a new market through innovation rather than trying to compete for the already existing ones. One of the biggest consultancy firm worldwide when it comes down to technology, Accenture, estimated in 2012 that around 75% of the Standard & Poor's 500 index firms[5] would cease their activities by 2027, because they have been driven out by new and more technology advanced competitors or just because of merger movements (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

This chapter will try to throw a critical eye on the actual rules and tools at the disposal of the legal bodies and pinpoint factors that might be improved or may not be adequate to the digital world. It is not intended give a "plug-in" solution, but rather to provide some ideas on how the actual literature could evolve.

3.1. Discussion:

In its 2017 annual report, the European Commission announced that it reviewed 3457 merger cases between 2007 and 2017. During that span of time, only eight cases have been denied. Furthermore, the average "*Intervention rate*" from the European AA was 7%, this rate, takes into account the denial of a deal as well as second phase withdrawals and mergers allowed conditionally to the use of remedies (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019). What is striking is that this rate is consistent with what happened before 2007, but also that the very few deal-refusals suggest a possible under-enforcement. The EC seems to favour the use of remedies to repair a situation rather than denying a merger, that would allow only "healthy" mergers to take place. The use of remedies hold a part of uncertainty because of the difficulty and technicity they require to be applied onto real life markets and situations (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019).

This low prohibition rate (8 on 3475 merger cases) also raises concerns regarding the nature of the mergers themselves. As mentioned before, horizontal mergers represent the vast

[5] The S&P500 represents the 500 biggest firms present on the American stock exchange markets

majority of the European Commission cases. And we know by definition that a horizontal merger carries anti-competitive effects[6] unless they are countered by the presence of verifiable and capturable efficiency gains. The question is, how can so little mergers be prohibited when they intrinsically raise concerns? Also, according to Shapiro, when big companies intend to merge, it is very likely that they already reach their maximum scale and operation efficiencies, which makes it harder to justify a cost reduction strategy benefiting consumers (C. Shapiro, 2010).

As of today, there is no data available to directly prove under-enforcement. However, two interesting studies present relevant information. A first study, points towards under-enforcement from the DOJ and FTC (J. E. Jr. Kwoka, 2013). In this paper, the authors analysed 47 mergers cases in the US and discovered that the majority of them involved remedies and that once these mergers are cleared, they would, on average, lead to an increase of price of 7%.

A second study, (T.Duso, K.Gugler, & F.Szücs, 2013), brought to light that in 66% of the cases, the EC was clearing merger with anti-competitive effects; what the authors called an Error of type II: which is to fail to identify and dismiss false incorrect hypothesis. Which once again questions the enforcement abilities of the authorities.

The problem with data and technology driven markets is that they have some specificities that do not allow to fully grasp their true value only through turnovers. They have very distinguished "*Business models*" and a "*valuation system"*, different than what normal types of business usually display, making enforcement with the actual tools more complex (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

Data and technology driven markets indeed usually have very popular "free" services business type of model. The aim of the firms acting on these markets is to grow fast through free access and services that they will monetize once they became "inevitable". In the meantime, revenues will be made through advertisement on the free service platform. The problem of this type of business model, is that it can often be unreliable and big names have failed to really blossom using that route (e.g. Twitter that "*in spite of its 330 million monthly active users, has never had a profitable year since its inception in 2006 to 2017*" (Reuters.com,

[6] Merging firms will lessen the competition they were facing, giving them an incentive to increase prices. This will lead the other competitors, which have a bigger consumer base following the increase in price from the merger, to increase their price as well. Overall the consumer ends up worse-off. This type of mergers also raises concerns regarding coordination types of moves and their effects on innovation and entry

2017)), but it does not mean they are not relevant companies (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

Regarding the valuation system in the data and technology driven markets, the difficulty is that, some firms extract their value not from enormous revenues but rather through the growth opportunity they have in the future (we can think here about a company with a bright new innovation) or even through the possible synergies they would generate if associated with a bigger and established undertaking, because alone they do not reach a wide enough network for example (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

The criticism here does not intend to depict the threshold system as black or white, as it has been successfully applied in the past for some of the most important cases in the technological area (e.g. Microsoft and LinkedIn merger in 2016 for a substantial amount of $26 billion). Nonetheless, turnovers being the main criteria from European AA, it opens the door for some questioning or suggestions of modifications. Why? Well, for a Facebook - WhatsApp acquisition move not to happen again. Indeed, this merger transaction value was more than $19 billion dollars offered by the American giant to acquire the green-logo app (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). What is interesting is that WhatsApp was only generating just above $10 million revenue while being massively use worldwide with around 600 million users at the time, therefore not meeting the European Commission's turnover thresholds (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

In an attempt to adapt, some Member States' AA tried to change the threshold system, or at least attempted to introduce some changes in general. Here, we take the example of the German and Austrian antitrust authorities, whom changed their revenue thresholds system to a transaction value one. Their goal was to capture companies that do not raise a high amount of revenue but that would create other types of value and that were relevant on their national markets (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

After a review of the effect of such changes, the EC decided to consider implementing them at the EU level. But it would come at a cost. Indeed, it has been argued that, on average, only three more cases would be reviewed per year and that high turnovers threshold are, generally, a good incremental variable of the possible and plausible effects of a merger deal on the relevant markets (Stauber, 2018). Threshold based on transaction-value could also lead to over-enforcement according to the levels at which they are fixed. Over-enforcement leads to lesser quality of work cetiris paribus and longer waiting periods.

However, transaction value-based threshold (as in the US for example) comes with two main problems when applied to firms acting on data and technology driven markets. Firstly, the determined threshold must be "*predictable*" and consistent. In some instances, firms may see their valuations fluctuate on the relevant markets because of the nature of the digital world. Nonetheless, in any situation, authorities and firms have to be able to determine when to review or declare a case. This juridical blur may lead to problematic situations, with firms playing around the threshold or blurredness for instance (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

Secondly, there already exists a mechanism for Member States to report a case to the European level under certain conditions. This compensates somehow for the cases that go unnoticed because of the thresholds. But this leverage that the countries have, requires them to take action and ask for a review. Which leads to the risk of being used to protect some kind of lobby or national champion in an industry. It wouldn't be far stretched to see a country very much push and support a firm (J.Posaner & T.Larger, 2019), or even refuse to declare a deal to the European level because the merger would greatly benefit its economy to the detriment of the other countries involved. This would leave the door open to bargaining and negotiation around the transaction-value in order to make it fall just under the thresholds, independent of the (anti) competitive effects of the merger.

Furthermore, fairly recently, the French and German's AA released a paper arguing for a revamp of the actual methods to define markets (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019). They made a very interesting point, that the European Commission should enlarge its sight when defining markets, in order to better reflect and consider the actual and future worldwide competition, According to them, the tendency is to narrow too much the relevant markets which plays to the detriment of potential European champion (M.Motta & M.Peitz, Competition policy and European firms' competitiveness, 2019). They consider that, they would need a less strict control to achieve a big enough efficiency gains to be able to fight, which would ultimately benefit European consumers. To that end, they argued that a merger that would by its nature harm consumers' interests (as in the case of horizontal mergers) would only be acceptable if the efficiency gains were so big, that they could counter-balance the intrinsic damaging nature of the merger (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019).

Indeed, a call for the merger guidelines to consider adding some provisions regarding foreign competition in European soil has discussed by Motta and Peitz in their paper "*Challenges for EU merger control*" from March 2019. Currently, if a foreign firm is not

engaged in abuse of dominant position practices or is just dominant, there is very little the European Commission can do because of the 102th article of the TFEU[7]. This leaves as only option pre-emptive actions from the European firms and authorities: either take anti-dumping measures or start behaving like their foreign competitors. The downside being that leaving this door open, is leaving the door open to anti-competitive practices rather than fighting against them. Which could lead to abuses outside the primary use designed for them.

Turning to the impediment to effective competition, as mentioned in chapter 2. A merger would be notified in case of a "*Significant impediment to effective competition*" (SIEC) (L-H.Röller & M.De La Mano, 2006), which informs of "*A concentration which would significantly impede effective competition, in the common market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position, shall be declared incompatible with the common market*" (European Commission, Council regulation (EC) n°139/2004 on the control of concentration between undertakings, 2004). The problem when it comes down to SIEC is that there is no clear path to follow on how to assess what "significant impediment" means and on which market. The Commission leaves it to a case by case analysis to determine the extent of the market which could go from the internal market to the whole European market. This creates a lack of stability and consistency. Also, the SIEC test is based on a comparison with a counter-factual that does not exist. Indeed, the antitrust authorities try to forecast the likely outcome of a merger, without remedies, and compare it to the situation where they refuse the proposal (pre-merger type of situation). This is where, for multi-sided platforms, this test also shows its limits (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019).

We would also like to discuss what economists' call "*The burden of proof*" (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019). Indeed, as mentioned in chapter 2, the procedures require the antitrust authorities to prove if a merger is anti-competitive or not. What is ironic and maybe not efficient in the actual system, is that to do so, the EC should have access to sensitive information held by the companies involved, leading to an asymmetric information dilemma. The actual system can be perceived as setting the approval of merger deals as the default option unless the EC manage to get its hands-on convincing convicting evidence. From an economist standpoint, it would be more logical if it were for the merging bodies to prove the

[7] Treaty of the functioning of the European Union.

merits of their move, as they are in possession of all the tools and information to demonstrate it and as they are the one trying to disturb the actual market balance.

In their paper of 2019, Motta M. and Peitz M. suggested the use of a "*Safe Harbour*" approach (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019). This approach would allow small companies, both assets and sales-wise, to escape the reviewing process while bigger players would fall right into the EC attention. With that method, even big companies taking over small ones would need to be considered because of the cross-markets effect they might induce. Like that, resources and time are spent upon cases relevant for the consumers' interests. This last part is very important in digital sector where it is easier to buy innovative small start-ups that might become future competitors rather than developing a competing service/technology (e.g. Google and Waze). It does not mean that every merger or acquisition of this type has this said effect, but there is a need for a system controlling for what they call the "*killer acquisitions"* (C.Cunningham, F.Ederer, & Ma, 2018).

Their approach does not only enable to control for the effects of the merger on potential competitors, but also for potential entry through innovation, that happens when a firm is not considered on the relevant market for the time being but is developing a likely competing product/technology through its investment in R&D and innovation. This is very common in the pharmaceutical. For example, in the merger case between GSK and Novartis (European Commission, Case M.7276 - GSK/Novartis, 2015), the EC detected that the merger would kill the development of one or more drugs that could be future competitors of the already existing products from one of the two companies.

And lastly, the authors commented on "*recent entries*" on a market. Once again, looking at the market shares of a recent enterer would not reflect the potential and actual competitive pressure put on the market as they have the tendency to set lower prices to create a larger consumer base. The authors' example is the mobile telephony services, where new comers will offer lower prices than established firms to counter the switching cost customers have to bear to go from one company to another (M.Motta & M.Peitz, Challenges for EU Merger Control, 2019).

Motta and Peitz's solution is somewhat close to the US' system where concentration levels of the merging firms are very much controlled as seen with the HHI and will trigger, by default, a blockade of the request introduced if the concentration is judged too high. Motta and Peitz's proposal, supports the call for fundamental changes of the European merger guidelines

among the economist society: if a merger does not fall under the safe harbour, then it requires a review, they also support the idea that a real overhaul of the foundations of the thresholds may be needed, as they lack important aspects of today's society.

That being said, it is worth reminding that such reforms might not be needed. Indeed, the detractors might argue that there exists already enough flexibility and adaptability in the actual mode of operation. Indeed, as explained earlier, if three Member States decide to report a merger to the EC, the latter will have the obligation to review. Therefore, if a country happens to have a threshold not based on turnovers, it could review cases that would not fall under EU eyes and notice them when needed. This process has already seen some success. For example, following the request of many Member States the EC got to review the cases of Facebook-WhatsApp and also Apple-Shazam (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

Defining and assessing the relevant market is a very important aspect of the antitrust authorities' job, and it is discussed and explained in their guidelines at length. The European Commission tries to assess the concentration level through market shares, the competition level through price-based tests and the position of the firm by their margins and revenues. But when in presence of technologically, data and digitally oriented companies, it is often difficult to determine what is the price of the services because of their "free service" type of business models. The difficulty for the AA is to get away from their usual tools, as it is not possible anymore, by using the usual substitutability tests, to determine how mergers have an impact on prices, quantities or qualities with zero prices models (A.Prat & T.Valletti, 2018). (Wu, 2018) expressed this situation as a "*Blind spot*" in the actual system and that such companies cannot be properly quantified by the contemporary definition of the market. He called those firms "*attention brokers*" as they lure consumers in and get their attention to sell it to the advertising companies. Therefore, they fight for attention, allowing thereby the advertisers to cover as much users as possible while avoiding the overlapping of their ads. Here, business and value creation are made on the producers' side of the platform while consumers enjoy a free service.

Another important linked aspect is that, such firms generally operate in what is called multi-sided platforms, where there is a different market for consumers and producers but also, where there can be various markets on each side of a platform (so various markets faced by customers and various markets faced by producers). Then, for the AA's instruments to be as accurate and as relevant as possible, the right market has to be determined. Furthermore, competition on one side may be affected or even subjected to control from the other side of the

platform, making it even more difficult to determine which market is independent of the other (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

This led to a new study from Prat and Valletti, in which they tried to formalise this type of new activities and provided a deeper analysis of their market power and functioning in general. In their model, they identified in three type of participants: "*consumers, social media platforms and producers*" (Valletti & Prat, 2018). They introduced the possibility of multi-homing[8] for consumers and the possibility for producers to promote their products through advertisements on social media platforms. The producers decide to which consumers and on which platform the advertisement is intended for. This mechanism takes into consideration the use of big data and allows to target specific types of consumers according to their individual consumption preferences. This allows to account for potential or new entrants worldwide that could quickly seize market shares with targeted advertising. In this setup, consumers have their own markets, and these get bigger the more platform consumers browse, making it likely to be expose to international companies (international competition) and new entrants.

Thus, by joining all the platforms consumers have access to, the authors compute consumers' welfare. Afterwards, they claim that consumers' welfare decreases as the new formed concentration index increases: this index is different from the AA's one because it now takes into account the proportion of consumers on a given platform and the number of platforms they go to. Using this method, they claimed to be able to compute the potential consumer's welfare effect of a merger in this sector (they used data from 2016 survey from Pew Institute Survey on Social Media Trends by Gottfried and Shearer).

Merging Pair	Pairwise Overlap	Three-way Overlap	Welfare Effect
Facebook-Instagram	9.4%	8.4%	13.6%
Facebook-Twitter	7.0%	8.4%	11.2%
Instagram-Twitter	0.5%	8.4%	4.7%

Figure 3:Welfare effect of a merger - Source: Prat- Valletti, "Attention Oligopoly", 2018 – data from Pew research 2016

The above results showed that, the higher the share of consumers using the same merging platform (overlapping consumers), then the higher the potential anti-competitive effect

[8] To have access to , compare and use different producers' product for the consumers, while being at "home" (effortlessly and without any transportation cost).

from this merger (seen by the negative welfare effect; reversed sign in the table). As these companies were competing for consumers' attention, if they merge, consumers would end up with less variated products and higher prices (increase in demand for the same ones). But it also has an effect on advertising companies that will promote the bigger companies at the expense of the new players. Therefore, the key element when assessing this kind of merger is the ability for consumers to "*multi-home*" to reduce the rarity of the attention resource (Valletti & Prat, 2018).

Another comment concerns the need for better and more accurate test(s) that would not be based on prices when analysing data and technology-driven type of markets. The SSNIP test indeed loses its relevance because there will be no movement if there is no price; it neglects at some degree "*quality*" and finally, it does not consider network effects. While in traditional industries the price is driven by the cost, here the price (when there is one) is connected to both sides of the platform and might depend on the indirect network effects expected (the fact that an increase in the number of users on one side of the platform has a positive effect on the number of users on the other side of the platform) (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

As said, multi-sided platforms types of structure are very common in these sectors. When they are present, the typical market power assessing tools also lack one important aspect: the potential pace at which firms grow. Indeed, a company like Waze took only 4 years to reach a 500 million users base (A.Myers, 2013). This type of growth is not something common or foreseeable on more conventional industries. This is caused by network effects leading to the fact that the growth from one side has potential exponential growth effects on the other side of the platform. Also, companies can be very big while being at different states in their growth process. For example, Instagram did not use advertisement when it was bought by Facebook in 2012 because the former was still growing its users base. This is why the antitrust authorities did not see both firms as direct competitors on advertising market, whereas now, Instagram is known to be an "influencer" platform, very much exposed to advertising in all kind of ways (Valletti & Prat, 2018).

Lastly, the interconnectivity of markets in multi-sided platforms, and the digital world in general, is a call for an overhaul of the targeted practice and price discrimination approach. It is now very easy for consumers to use multi-homing and compare prices online, as well as being delivered the product. Although it does not take away the possibility for the undertakings to price discriminate, a counterargument could be that for a minimum amount of effort a customer can find the most competitive price. The question then becomes, how many substitute

options does a customer have access to in its area, rather than, has a customer access to substitutes (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

It is for those reasons that, the European Commission is turning itself more and more towards new and more complex indicators to determine market power in this popular type of markets. The EC try to focus on how a firm has the capacity to innovate, deny entry or the extent of the network effects in a competitive setup (C.Hatton, D.Gabathuler, & A.Lichy, 2018).

3.2. Preliminary conclusion:

What has been observed so far is that while there is no hard evidence of under or over-enforcement, there seems to be many economists trying to rethink the Commission's approach. While there is no clear-cut answer as to what is right or wrong, the general merger rules and tools do not account for some important aspects of the technologically, data and digitally oriented sectors One can name in particular the definition of the market definition, the assessment of the market power or market shares and the in-depth control for innovation or entry barriers.

The current system does not seem to lead to under-enforcement at first sight. In Europe, the interplay between Member State and European Commission allows to control for the cases flying under the radar, even if still based on a turnover threshold system. But, the current burden of proof being on the antitrust authorities' side leads to think that under-enforcement could be the default option, because of the asymmetry in access to information.

Meanwhile, in the United States, the transaction value-based case review enables to spot those cases right away. But as mentioned above, it needs consistency (which is easier for a single country like the US, rather than a conglomerate of countries like Europe) to be able to apply the same rules for every case. This transaction-based system also, opens the possibility to play around these thresholds when making a deal to avoid the scrutiny of the antitrust authorities' institutions.

Nonetheless, the European Commission, with its large framework, allows for a case-by-case analysis of data and digitally driven mergers and seems to be evolving from each encounter they do. From Microsoft-DoubleClick case in 2008 to the Facebook-WhatsApp case in 2014 or even the Microsoft-LinkedIn case in 2016, there always seems to be an adjustment or a better understanding of the market as the cases go by (C.Hatton, D.Gabathuler, & A.Lichy, 2018). One could also argue that such skill-analysis development would not be available if a general set of rules specifically targeted at that type of sector would be put in place. A prime example

of that could be the development of the new General Data Protection Regulation (GDPR) submitted and enforced lately (2016), clearly targeting the big data industries but as a complement to the European Commission guidelines.

Chapter IV: Cases Analysis

In this section, we will explain the course of several tech-merger cases reviewed by the European Commission. Then, we will try to link the main analysis and conclusions drawn by the European Commission to our criticisms and conclusions described above. The objective of this exercise is to determine the relevance of the previous analysis and see if there has been an evolution in the EC methodology and draw a possible conclusion about the procedures and guidelines of the European antitrust authority.

The cases analysed will be the following: (i) Facebook- WhatsApp, (ii) Apple – Shazam, (iii) Microsoft – GitHub and finally, (iv) Microsoft – Skype.

4.1. Facebook – WhatsApp merger analysis:

In this first case, Facebook (FB) is described as a creator and owner of websites and mobile devices' applications. His main business points are social network, consumer communication and photo-video apps, as well as an "*advertisement spaces*" opportunity for advertising companies. Facebook owns three main platforms: Facebook, Messenger and Instagram (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). WhatsApp (WA) is only described as a consumer communications service for mobile phones. An important detail about WhatsApp is that they do not advertise on their app. Facebook's decision to buy WhatsApp springs from their business strategy of making FB the centre of a well organised social network covering every aspect of a human's life: photo – social expression place – connectivity - etc.

The case did not have a European-wide dimension as explained previously and failed to meet the turnover threshold because of €10 million turnover in 2013 (Statista, Annual revenue of WhatsApp from 2012 to 1st half 2014 (in million U.S. dollars), 2019)[9]. Anyhow, the case fell under national jurisdiction and was reported to the EC by Member States (once again blurred in the report). On the 19th of May 2014 that the antitrust authority opened the case.

4.1.1. Relevant product and geographic markets assessment:

In their exercise, the European Commission divided the analysis in three different types of services that where providing the apps: "*Consumer communications services,*

[9] The exact amount cannot be disclosed by the European Commission report, but several sources estimated it.

Social networking services and finally, Online advertising services" (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

4.1.1.A. Consumer Communications Services:

These services represent "*multimedia communications solutions that allow people to reach out to their friends, family members and other contacts in real time*" (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). In this sub-section, the European Commission compared Facebook-Messenger application to WhatsApp. They are acknowledged as being extremely fast-growing applications and can be provided as part of a network or stand-alone application. There exist various types of consumer communications services app: some focus on having a wide range of functionalities, some are only available through one operating system and some are available only on one type of smartphone device (i.e. Apple, windows phone). These particularities where taken into account while determining the relevant market for this companies' apps feature (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

4.1.1.A.1. Product and geographic market definition:

Facebook and WhatsApp proposed that the EC considered all the types of consumer communications services without any further differentiation because of how fast a company can switch from one segment to the other.

The reviewing entity decided to only take into account the smartphone market (so a differentiation based on the availability on platforms) for consumer communications services as WhatsApp had no intention to expend its services (remember that we are in 2014 here and that WhatsApp was not available on computers). The apps were considered as offering the same possibilities and gadgets. Moreover, the EC decided not to consider traditional phone operators as potential competitors on the market because those consumer communications services are generally free unlike traditional operators. More importantly, according to the companies involved in the industries, it is extremely easy and not cheap to develop such application pushing down any entry barriers. Lastly, if the traditional communication systems were to be accounted for in the relevant market, the Commission estimated that it would weaken the position of the two companies in the communications market and weaken their analysis.

This explains why, the relevant market defined by the EC for consumer communications services is as narrow one as only accounting for this service on smartphone applications.

The merging firms urged the reviewing authority to consider their consumer communications services as European Economic Area-wide (EEA). Because these apps have per se no boundaries and regardless of the variation of their market shares across European countries, it is not significant enough to exclude some areas.

To take position, the legal authority decided to take inspiration from the available case-law. They determined that the notifying party's claim was reasonable and could even be extended to a worldwide market consideration as no real difference existed in the product among using countries. However, WhatsApp and Messenger do not enjoy the same position in other parts of the world because of different consumer preferences in those regions. For example, in Asia, they are behind LINE and WeChat which are the two prominent apps (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). Also, the place where their shares were the greater was EEA. For those reasons, the notifying party and the Commission aligned on an EEA-wide market with a possibility of making it worldwide if it became relevant for some reason.

4.1.1.B. Social Networking Services:

The social networking services represent the social network as we know them, a website or an app with news feeds, expression boards and a network. Here, the European Commission targeted the Facebook application in general, against WhatsApp app. These services are mostly free to use.

4.1.1.B.1. Product and geographical market definition:

According to FB, its app mainly consists of a user profile, a newsfeed and a timeline. On none of those features, WhatsApp is a competitor to FB, therefore the European Commission shouldn't worry.

Nonetheless, the exploration of these features was necessary as nowadays the line separating Social Networking Services (SNS) and Consumer Communications Services (CCS) is very thin and blurred. The Commission highlighted that the main differences between the two is the more complete social aspect of a social network. Indeed, the type of communication performed is different (real time for CCS versus long-term post in SNS). The EC also decided not to split any further the SNS activity (for platform and operating system). In the end, it has been decided to leave the boundaries open regarding CCS as being part of the relevant product market definition.

The decision ended up being the same as for the CCS. It was decided to consider both products as similar in many ways. The notifying party decided not to pronounce itself on the matter, giving total freedom to the European Commission.

4.1.1.C. Online Advertising Services (OAS):

The last activity consists in the possibility for Facebook to sell advertising spots on its platforms to earn revenue from advertising firms. Moreover, FB is capable of capturing and analysing the data provided by its customers in order to provide targeted and relevant ads to each of its users. Also, FB does not sell its data or data analysis to advertisement firms (allegedly at the time, because recent evolutions showed otherwise). At the time, FB was not allowing ads on Messenger and WhatsApp was not using advertising as a resource revenue either.

4.1.1.C.1. Product and geographical market definition:

For this analysis, the European Commission still decided to use available case-law such as Google-DoubleClick and Microsoft-Yahoo cases. They went against FB-WA recommendation of not splitting the market and decided to divide it between offline and online advertisement. The notifying party clearly being of the second type, the EC still decided to leave the door open for offline advertisement if needed as it would not be incompatible with the current analysis in case a claim came through.

Using the same analysis as above and in the case-law mentioned previously, the EC declared that, within the EEA, the online advertisement market boundaries should be limited at a national level or at a linguistic one.

4.1.2. Competition Implications of the merger:

4.1.2.A. Consumer Communications Services competition:

The reviewing party concluded that competition on CCS is mainly driven by the network linked to the app, and by the functionalities at the consumer ‘s disposal. Firstly, the European Commission highlighted the fact that many substitutes where available for the consumers to pick from and that most of them were already multi-homing (using several apps at the same time). Therefore, the functionalities of an app and the quality of the experience provided with it are at the core of the attraction and innovation processes. Secondly, the utility of a consumer is greater the easier he can connect to his friends and family through the app, meaning that the user base has to be large. Lastly, price and trendiness are relevant factors when it comes down to the utilisation of an app. This market is very averse, to price changes; “*price-sensitive*”

(European Commission, Case M.7217 – Facebook/WhatsApp, 2014) and users emphasize their will to use only free apps.

For this competitive assessment, Facebook and WhatsApp claimed that the use of market shares would not be of the highest relevance. They argue that the CCS are an easy market to enter and to grow on and put forward the presence of multi-homing. Nonetheless, they sustained the idea that even with market shares, no "*anti-competitive unilateral effects*" will be raised. According to them, there is little barriers to entry or growth against rivals as well as switching costs against consumers that would result in a stronger leverage post-merger situation for the merging party (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

Despite all these arguments, the European Commission decided to compute the market shares and concentration, according to its guidelines, it allows them to visualise the structure, the state of the competition and the market for both merging firms and their competing counterparts. According to the information provided by the two companies, their joint market share would be of 30-40%: WhatsApp detaining 20-30% and Facebook-Messenger 10-20% (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). However, the reviewing party suspected that the information provided was likely to undermine the real position of the merging firms but was unable to find any reliable complementary information set to the one provided. The reasons of this questioning were that: (i) the data was based on an app owned by FB (Onavo data) only collecting on iOS and Android, (ii) they were focusing on the penetration rate of the app rather than on its effective use, (iii) they assumed that 75% of the iOS users were employing iMessage because their app could not collect data on it and (iv) finally, they included social networking services app in their data collection. Nonetheless, the reviewing party acknowledged the youth of the sector and its fast-growing specificity which, according to the AA, translate into entries and rapid innovation to which market shares are very sensitive. Therefore, having important market shares does not always reflect great market power or long-term harm to competition. (European Commission, Case M.7217 – Facebook/WhatsApp, 2014)

The closeness examination between the two applications revealed that, according to the respondent of the EC investigation, the only similarities are the communication possibilities and the magnitude of their networks. The CCS were considered different product and there was no service provided by the two apps that was not provided by a close competitor. The notifying party apps were rather seen as complementary by the review entity, especially in a multi-homing type of environment and with the great number of overlapping users. Furthermore, the

EC assessed that there wasn't any presence of switching costs in case consumers were to decide to leave the merging parties platforms and use competing apps. However, this decision was not fully supported by the competitors as they argued that, for a user, losing his data in the changing process could be a significant brake to change. This analysis led the Commission to declare that Facebook and WhatsApp were not competitors nor will they impede consumers to freely move around the market.

Concerning barriers to entry and innovation, the CCS market has been pictured as a fast-growing and extremely innovative market by the reviewing entity. WhatsApp for example, went from 0 to 600 million users in a 5 years span, but also LINE and WeChat, who appeared in 2011 and had 400 million users and counting by 2014. The CCS market grew by 203% in 2013 and this trend was forecasted as continuing (Furry, 2014). Due to the pace at which it grows but also for the three following reasons, it was concluded that they were no "traditional" barriers to entry:

First, the investigation collected testimonies among competing firms which were unanimously in saying that the creation campaign to develop and spread a new app of this gender, is very fast and inexpensive (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

Second, this sector displays very little "*patents, intellectual property rights or know-how barriers"*. Most of the methods, technologies and specific knowledge required is basic and accessible (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

Third and last point, none of the merging entities have the possibility to foreclose or deny in any sense the entry on the CCS market as they do not own operating systems nor other critical access resource/point. In addition, user base is sensitive to the "word of mouth" and would easily migrate from one app to the other if time is given.

To conclude its analysis the EC looked into the possible rise of anti-competitive network effects. They defined it as "*network effects arise when the value of a product/service to its users increases with the number of other users of the product/service*" (European Commission, Case M.7217 – Facebook/WhatsApp, 2014). In this merger case, WhatsApp had 600 million users while Messenger had between 250-350 million users in 2014. The particularity of Consumer Communications Services is that the magnitude of the number of users and connectivity with their relatives is the most crucial point when it comes to consumer's utility maximization. Therefore, it has been declared that network effects can arise in such sector but are not per se

negative. The possibility of harm appears if foreclosure can arise from it and, according to the Commission, has to be appraised on a "case by case" analysis.

The actual claim of network effect is alleviated by the market specificities presented above: fast-pace market, using one of the smartphone applications does not prevent the use of other ones and both merging firms' app are seen as complementary. As a result, the market experiences common multi-homing practices, and none of the parties hold on to crucial part of the market (operating system). Also, merger-specific network effects were accounted for, and in the light of the EC's investigation, the main concern was the possible integration of WhatsApp into Messenger. However, by combining the notifying party and competing firms' view, the antitrust authority declared that, it wasn't in the merging firms development plan provided, as well as, and more importantly, it would be extremely badly received by users base as both apps provide different approach to communication services that would not coincide together and would likely result in a loss of customers.

In conclusion, the European Commission declared that no anti-competitive concerns were likely to arise from the merging in CCS and therefore cleared that part of the deal.

4.1.2.B. Social Networking Services competition:

This segment of the analysis was subject to more intense debate coming from the other agents present in the market (competitors and responders). Indeed, the arguments were that for some, before the transaction, WhatsApp would become slowly but surely a competitor of Facebook in the future. Whereas for others, WhatsApp was already a competitor of Facebook on SNS. For these reasons, the European Commission led its analysis as if the two merging firms were direct competitors on the market for social networking services. It is worth mentioning that FB has 1.3 billion users of its social network worldwide and 200-300 million users EEA wide (European Commission, Case M.7217 – Facebook/WhatsApp, 2014).

A questionnaire was made to determine the actual competitive landscape of the market. The names that came out were Google+, LinkedIn, Twitter and MySpace. Only some of the respondent said that CCS apps in the likes of WhatsApp, could be considered as SNS competitors. But, including CCS as a part of the market definition would make it to wide and understate the position of FB as SNS. The two applications were seen as complementary and this feeling was reinforced by the ability from customers to multi-home. Facebook was also seen as too different in many aspects to be considered as a similar service to WhatsApp. This,

because of its newsfeed and timeline features but more importantly because their user base was overlapping a lot.

This is why the European Commission concluded that the two apps were not close competitors, and that no significant concern would arise from the merger on this segment of the market.

4.1.2.C. Online Advertising Services competition:

In this segment, the antitrust authority only scrutinized to which extent Facebook's market power in the online advertising sector (OAS) would grow as they would gather more data post-transaction. All the possible difficulties arising from the accumulation of data related to privacy-policy would have to be addressed by the EU GDPR law and not be further pushed in the light of this analysis led by the European Commission.

This market is only explored by Facebook as its merging counterpart does not offer or sell advertising spots on its app for the moment. Nonetheless, the reviewing party concluded that FB position in the OAS could be reinforced and decided to analyse two scenarios. The first scenario assumed that, if WhatsApp was to become an online advertising space provider. Even though the merging parties stated that it is not in WhatsApp plans to do so as they believe it would go against what users expect from them and disrupt their whole experience. The conclusion appeared to be the same: customers would drive away from the app if OAS were to be introduce in WhatsApp strategy. Furthermore, even if they were to introduce it, the only situation in which it would raise competitive concerns would be the one in which there is not enough competitors on the market. This claim has been shut down by the competitors themselves. Thus, the Commission cleared that scenario.

The second scenario assumed that WhatsApp was to become a substantial data provider for Facebook and would sell more detailed and targeted advertisement spots. However, during the reviewing period, the only data that WhatsApp had gathered were the profile information (name, phone number, …). All the residual content is encrypted and only the users have access to it on their phones. Therefore, it would require a change in the terms of use of the whole application that would, once again, disrupt the working habits of the users. In addition to that, Facebook would have to develop and find a way to match its profiles with WhatsApp's, which according to them and the industry, would be fairly difficult (it would also go against one of WhatsApp growing strategy that has been censured in the report).

To conclude, the EC stated that such scenario would only be harmful if Facebook could use this data to reinforce its position in the OAS but would not raise any significant concern if there were enough competitors in the sector. As declared above, the investigation led to believe that there are enough competitors and that advertisers would enjoy plenty of alternatives.

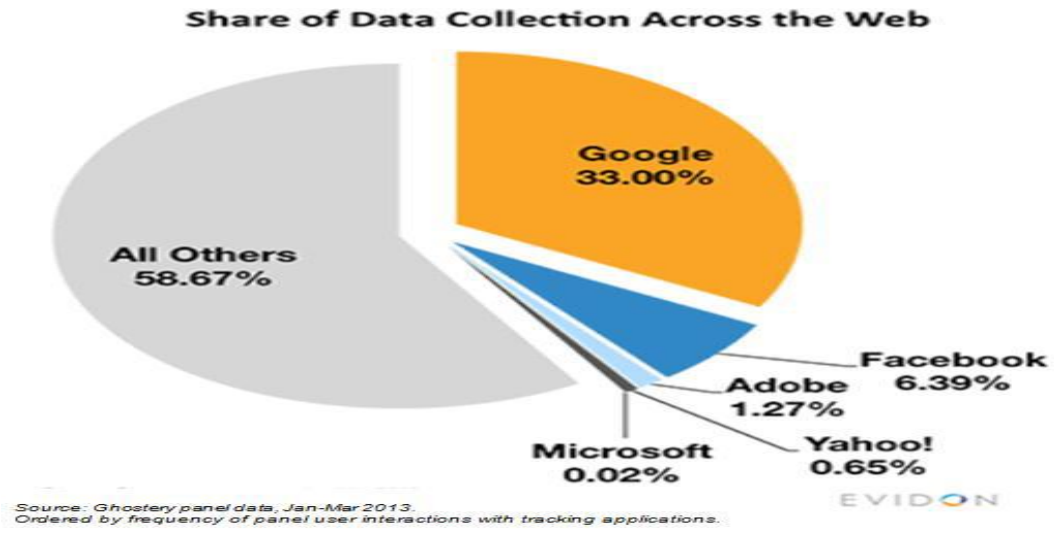

Figure 4: Share of data collection across the web (Ghostery Panel data, 2013)

4.1.3. Conclusion:

The antitrust authority decided to clear the merger without requiring any additional remedies coming from the notifying parties. All the segments and sub-segments were considered as not susceptible to be significantly affected by the merger in a way that would hinder the competition and strengthen Facebook's position on any of the relevant markets.

In addition, we would like to notice that recently Facebook received a fine of €110 million by the European Commission for "*misleading information*" (Vestager, 2017) about its plan for WhatsApp app at time of acquisition (P.Teffer, 2017). In the more recent news, Facebook made another scandal concerning the use of data they acquire. Indeed, they do not seem to comply with the GDPR regulations and wrongfully use customers' data (J. C. Wong, 2019). Unfortunately, the EC had to work with the information provided at the time of the review, and many things were hidden by Facebook.

4.2. Apple – Shazam merger analysis:

In this second case, Apple is considered being a creator and a retailer of mobile phones and multi-media apparels (smartphones, tablets, computers…). But also, a developer and owner of operating system and applications for computers and smartphones. Moreover, Apple provides services and goods through online and offline shops, digital content to third parties as

well as a network. The second merging firm, Shazam, is only active in the "*music recognition apps*" market for smartphones and other similar digital devices (European Commission, Case M.8788 - Apple / Shazam, 2018). Both also provide online advertising spaces and collect data about user's musical tastes.

The case was not directly reviewed by the European Commission as it did not have an EU-wide dimension in regards to the merger guidelines articles. Indeed, the worldwide turnover of Shazam was only of €45.2 million in 2017, where only an undisclosed percentage of it was generated in Europe, therefore falling under the two revenue thresholds. However, thanks to the Austrian antitrust authorities together with the support of France, Iceland, Italy, Norway, Spain and Sweden (these countries will be referred to as the referring states moving forward), the case was brought to the Commission's attention on the 6 September 2019.

The merger had already been denied in phase one Investigation on April 23rd 2018, as the Commission judged that the concentration level would create anti-competitive through non-horizontal non-coordinated effects such as: (i) the possibility to foreclose competitors in the automatic content recognition[10] (ACR) market; and (ii) the ability to foreclose competitors on the digital music streaming application as the merged firms would gain access to crucial information on consumers and competitors. The merging entities contested the first phase verdict and pushed the case into the phase 2 Investigation that implies a deeper analysis. During the investigation, the reviewing party sent more than 100 requests for information (questionnaires, surveys) to the merging firms but also their competitors and all relevant parties. The relevant sector of this merger and the one for which the EC raised concern was the "*digital music sector*" (European Commission, Case M.8788 - Apple / Shazam, 2018).

To understand this merger, it is important to grasp the roles each firm is playing here. There is an upstream market where firms (record companies) will supply a framework for artist to express themselves (cover expenditures, network to spread the music…), and there is a downstream market in which songs and albums are sell in physical and digital ways to "*wholesalers and/or retailers*", as well as licenses over the records in their catalogues of songs. The downstream market is where Apple is playing, through Apple Music and iTunes, while Shazam is linked to the downstream market with its ACR technology. In the digital music sector, business is made through either music streaming or music download (iTunes) (European Commission, Case M.8788 - Apple / Shazam, 2018).

[10] ACR is a system/software that is able to recognize audio and video content.

According to the EC, the music industry has considerably changed over the last 20 years. Sales have been transferred from the physical to digital world and allowed the industry to start growing and making profit again. The digital music sector was expected to continue growing in the next years as fast as it did until now (IFPI, 2017). The biggest segment of it is the digital streaming sector, with its business approach. On this sector, firms provided a free service that in return generates revenues through advertising for the free users but that can be avoided by subscribing to the premium service that, offers no ads and more functionalities. The main objectives here are to convert free music enthusiasts' users into subscribers and to capture consumers who did not subscribe to any free app music rather than stealing competitors' subscribers on the market. In the EEA, the main digital music streaming providers are in the order of their market power: Spotify, Apple Music, Deezer, Amazon and Google.

The automatic content recognition (ACR) software is an important aspect of this case. The aim of this software is to recognize audio and video content through the microphone of the device used. There exist two types of ACR technique: fingerprinting or watermarking. Shazam is of the first type and consists of unique fingerprints linked to an audio or video content which are then stored in a database. The second type needs digital tags with particular information to be embedded into the file. In the EEA, there exist ACR firms based on both techniques, the biggest one being Shazam, followed by Gracenote, ACRloud (Chinese company), Audible Magic Corporation, SoundHound, Information.io, Digimarc Corporation, MusicTrade, Google search (for iOS, windows and Android there exist voice search), MusicMatch and Genius (European Commission, Case M.8788 - Apple / Shazam, 2018).

Lastly, the Commission puts forward the role of data in the market. According to it, users' data has a key position in the industry and is expected to rise in the coming years. Data can be of many uses such as "*development of new methods for delivering music to consumers; generation of data analytics; helping artists to understand their performance;(...); targeted advertisement"* (European Commission, Case M.8788 - Apple / Shazam, 2018). In the past, that kind of data was only available through physical sales or radio coverage. Nowadays, a lot of new players entered the industry at every level of the supply chain, making data gathering way easier and complete than it was before. Both merging firms gather data on their customers via their apps. These data goes from the identification of the users to their latest played songs, their playlists and musical tastes. Apple Music acts similarly as Shazam, but this allows them to promote relevant and personalized content to their users.

4.2.1. Relevant product and geographic markets assessment:

The European Commission decided to segment the analysis into five subsequent markets:" Software *Solutions platforms"; "Digital Music Distribution Services"; "ACR Software solutions"; "Licensing of music data" and "Online advertising"* (European Commission, Case M.8788 - Apple / Shazam, 2018). In all five of these markets, at least one of the merging firm is a consequent player[11].

4.2.1.A. Digital Music Distribution Services:

As mentioned previously, Apple creates and promotes operating systems for several digital apparels (macOS, iOS, tvOS and watchOS). Third parties like software developers and other actors of the industry have to use these operating systems to develop and promote their own services, one of which being the ACR software. For this purpose, the reviewing authority decided to analyse this market, even though, the merging firms claimed that the watchOS market (operating system for watches and other digital wearables) shouldn't be investigated as it was not relevant in the current merger.

In its first phase review, the EC excluded apps and software platforms and any type of subdivision of the analysis. In the second phase, it decided to let the product market definition open as, according to them, competition would not be significantly distorted by concentration in any definition of it.

Geographically speaking, the merging firms notified that the market should at least be considered as having an EEA dimension, if not worldwide. In the first phase analysis, the market was decided to be EEA or wider but with the exact boundaries left to be determined. This time, the EC decided to have the same approach and left it open as, once again, it would not result in level of concentration that would significantly impede the competition.

4.2.1.B. Digital Music Distribution:

In this segment, the reviewing and notifying parties agree on the fact that the delimitations between streaming and downloading services are not clear cut and should be left open. The EC inspection of the market did not help determining any real boundary as some companies declared being part of both markets while others did not when they were interviewed. In addition, the antitrust authority declared that concerns about concentration effects appeared, during the investigation regarding the *digital music streaming sector* which is the only market in which the activities of Shazam and Apple are connected and aligned. For

[11] We will use EC terminology going forward

those reasons, the EC decided to narrow the product market to the digital music streaming services.

As for the geographical width of the market, it has been decided that it can be considered at least national if not EEA-wide but had no need to be specifically defined as no major concerns were raised from concentration.

4.2.1.C. ACR software solutions:

The third segment's investigation was also not very successful in determining any limited relevant product market; neither for only ACR type of software, nor when including any app and software from any platforms that has such technology (e.g. Siri in iPhone or google maps' voice search system as being part of the market). The investigation also revealed that consumers were more likely to redirect themselves towards competing ACR mobile apps rather than towards the same technology but on different platforms (computers and so on).

Therefore, the EC decided that the concentration effects should be determined on both ACR mobile device as a stand-alone market, but also on ACR technology in a much broader sense (including all platforms), while the exact determination of the market product would be left open. For its geographical magnitude, the EC concluded that an EEA-wide market was the most relevant.

4.2.1.D. Licensing of music data:

The reviewing entity, through its investigation, based on testimonies and questionnaire, determined that there was complementarity in the data gathering between the merging firms rather than substitutability. Indeed, Apple could only access its own app's data and build up from it (sales and structural information), while Shazam could provide data coming from several other apps but in a limited manner (most played and trendy songs, playlists). Therefore, the Commission concluded that there was no need to determine whether Shazam's "*music discovery charts*" and Apple's "*music consumption charts*" were to be represented in the same product market, as once again, no SIEC was discovered. Thus, the geographic market definition was left open. (European Commission, Case M.8788 - Apple / Shazam, 2018).

4.2.1.E. Online Advertising:

While both companies used online advertising, they did not operate in similar markets. Shazam, on the one hand only allowed advertisement through its app, referred to as being "*Brand-specific advertising*" and is operated under Shazam's name and brand (European Commission, Case M.8788 - Apple / Shazam, 2018). Apple on the other hand, did not advertise

on its music apps (Apple Music and iTunes) but rather did it, to a little extent, on its Apple News app. As in previous instances, such as Facebook-WhatsApp, the EC decided to only consider the market of online advertising, but not to further define the product market for the same reasons as the other segments: no competitive concerns arose from concentration levels in this market. Moreover, the geographic market has been determined to be national/linguistically based or EEA-wide.

4.2.2. Competition Implications of the merger:

The merger was justified by the firms as aiming to combine and improve the quality of Apple's services by using and incorporating the technology of Shazam with the knowledge of the market and surrounding technologies regarding network and music from Apple. They put forward to rather look at the complementarities between the two entities and what it could lead to. According to this intention, the reviewing authority decided that the horizontal competition concerns should mainly be focused on the complementary activities performed by the two entities. However, online advertising and, licensing music data were still likely to raise non-horizontal issues.

4.2.2.1. Determination of Market Shares:

4.2.2.1.A. Software Solutions platforms:

As mentioned in the introduction, an operating system is a key element for software and apps developers, and Apple is an entity owning a worldwide operating system. Therefore, the EC decided to compute the share of Apple's product for each device as on Apple's product, no other alternative operating system can be used. EEA-wide, Apple's shares are "*5-10% on PC, 20-30% on smartphones, 20-30% on smart wearables, 50-60% specifically on smart watches and finally, 10-20% on TVs*" (European Commission, Case M.8788 - Apple / Shazam, 2018).

4.2.2.1.B. Digital Music Streaming Apps:

Apple and Shazam stated that trying to estimate their market shares on this market segment is very difficult and maybe not relevant because of the absence of data and possible comparison between market participants. Even more so, given that the EC has separated the market in to two different entities: streaming and downloading. Nonetheless, their estimation was of "*10-20% in EEA based on revenues and 5-10% based on subscribers*" (European Commission, Case M.8788 - Apple / Shazam, 2018). However, the merging firms only handed out data concerning their main worldwide competitors. This was considered to lead to an overestimation of the position of their rivals as well as underestimating the position of the

notifying party. Therefore, the Commission had to run its own investigation in order to gather data matching with their definition of relevant market.

4.2.2.1.C. ACR Software solutions:

To determine the market shares of the notifying firms, the EC had to estimate the position of Shazam on the largest as well as the narrowest market definition. The first one was estimated around "*5-10%, while the latest was estimated to be around 10-20% or well below 30%"* (European Commission, Case M.8788 - Apple / Shazam, 2018). The merging firms had no idea on how to assess it as neither of them, nor other sources to their knowledge, could provide and keep track of such information. The notifying party as well as the reviewing party then agreed on saying that market shares were not the best way to determine market power on a "*fast-growing sector, characterized by frequent market entry and short innovation cycles*" (European Commission, Case M.8788 - Apple / Shazam, 2018). But the EC highlighted the fact that Shazam is an established company and cannot be considered as a start-up since it has been operating in the music industry for 20 years and since 2008 with their app. According to the European Commission and Shazam's competitors the long tenure of the former as the biggest free app for ACR, reflects its real position. Thus, the reviewing entity decided to analysis and reproduce the market structure through surveys. They came to the conclusion that Shazam's market shares were well above 30%.

4.2.2.1.D. Licensing of music charts data:

No clear information about market shares in this sector was gathered by the parties. The Commission's exploration of the market nevertheless considered that as a vast quantity of companies were active on the market, no concentration issue would be raised.

4.2.2.1.E. Online advertising:

Once again, no estimation of market shares was available as those data are difficult to gather. Nonetheless, there seemed to be no overlapping between linguistic or national boundaries.

4.2.2.2. Horizontal concerns:

4.2.2.2.A. Licensing of music charts data:

Shazam's data base was not considered neither unique nor extremely complete by the notifying parties, which even considered that competitors in the digital music distribution are likely to possess richer data base than Shazam. The Commission acknowledged that the concentration level that would result from the combination of Shazam and Apple's products

would not be a SIEC and that both data gathering activities were rather complementary. The EC considered that no harm is likely to be raised in this segment.

4.2.2.2.B. Online advertisement:

The European Commission came to the same conclusion as the merging companies: in the pre and post-merger situation, the firms do not hold an important position in this segment and are unlikely to raise any horizontal concerns

4.2.2.3. Non-horizontal concerns:

In the first phase decision, the EC declared that reasonable concerns were raised concerning the ability for the merging firms to foreclose competitors on the digital music streaming segment within the EEA and in the referring states. But also, the merger would give an edge to the merging firms on its competitors in terms of access to crucial information on the industry. The foreclosure would take the form of a limitation, or hindering of some sort, of the access to Shazam's data and information by competitors and customers, to improve their own apps, to collect information about customers' tastes or just as a partner.

The anti-competitive issue regarding the access to important information has been analysed. Shazam had indeed access to information about Apple's rivals but (and they took the example of Spotify where Shazam has a special partnership with them) all the information they can get is only allowed by the other entity. It had to respect its terms of use and be notified when taken. Nonetheless, it is true that they had access to identifying information about consumers, and this could have led to better targeted advertising or practices. Furthermore, Apple already had access to a whole lot of information coming from all the devices using its own operating system. Indeed, they could collect the information to a certain degree, respecting GDPR laws, by the mere fact of someone possessing its iOS (European Commission, Case M.8788 - Apple / Shazam, 2018).

The EC assessed that if these two firms were to merge, Apple could combine both technologies and data to improve its own apps functionalities and services, while doing better targeted practises ad-wise. This could have effect on Apple's competitors that rely on converting non-subscribers into premium users as a business model. Even though the vertical guidelines do not define what is a sensitive information, the EC declared the possible data gathered in this case as sensitive. The merging firms replied to that in its pasts case-law, the EC had no considered such information as sensitive. This claim was swiftly swept away by the EC

who declared that it was different times and that they promote a case by case analysis (European Commission, Case M.8788 - Apple / Shazam, 2018).

However, the reviewing entity announced that it was ambiguous whether the merging firms would be able to use this sensitive information in such a distorting way. This because, the notifying party had to comply to legal (GDPR) or contractual (Shazam and Spotify, but also terms of use) obligations that would prevent them to exploit unfairly the data. The debate was mainly focused on the extent to which Shazam could share its data in the limits of the laws and contracts, referring not only EC rules but also to competitors and other aspects of the EU laws (like GDPR). The main take away was that both merging firms were constrained by the legal framework and by the fact that Shazam only had special access to Appel's biggest competitor (Spotify) because the later allowed it. A merger would just require adaptability from Spotify in the data provided if the post-transaction situation was seen as troublesome. Therefore, the EC declared that the competition remain undistorted

Moreover, the reviewing party declared that the users base of Apple was already well established and that their business model was turned towards switching free users into subscribers, which does not aim at stealing its competitors but rather better served its own interest. Even more so, the EC considered that any aggressive competitive stand from Apple would just lead to adequate responses from its competitors.

Finally, the European Commission announced that there should be no SIEC as plenty of other firms than Shazam provided such data. The position of the merging firms post transaction would not enable them to control the market as the market is growing and has been estimated to continue to do so (as most of those new digital markets).

2018	2019	2020	2021	2022	2023
31%	25%	21%	19%	14%	15%

Figure 5: Expected growth of gross revenue of the digital music streaming sector 2018-2023 (Goldman Sachs, 2017)

Alongside these graphs, the investigation organism, Statista, also found out that the music streaming segment was going to continue increasing until 2022 both from a revenue and user-base point of view. It also corroborated the fact that growth in this sector was coming from transforming free users into premium users rather than stealing competitors' users.

In conclusion, Shazam's data and functionalities were not deemed unique and irreplaceable on the market. Plenty of substitutes appeared to exist and competition would not be hindered by a union between Apple and Shazam. Moreover, according to the EC, the combination of both firms would enable the improvement of Apple's services to the benefit of consumers and competition as better quality and pricing would spring from the reaction of their competitors. Therefore, the Commission concluded that no non-horizontal concerns would be likely to appear on this segment.

4.2.4. Conclusion:

The European Commission decided to clear the merger in the second phase of investigation. No remedies where required, but a new type of analysis had to be done, focusing not only on market shares and concentration as best proxies for market power, but rather on the importance of data in every aspect of the deal

4.3. Microsoft – GitHub merger analysis:

Microsoft is a firm present in the creation and development of computer software (DevOps being a part of it), physical and non-physical services as well as apparels, "*cloud-based solutions, online advertising, recruiting and professional social network services*". GitHub is a supplier of DevOps[12] tools, a well-established "*source code hosting platform for version control and collaboration on software development, for use online and on-premises, and job listing services"* (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

Once again, the merger operation did not fill the Commission criteria to be reviewed, as GitHub's turnover was below €250 million in Europe. Even though this organization had, at the time of the review, "*more than 28 million registered users*" (European Commission, Case M.8994 - Microsoft/GitHub, 2018). Nonetheless, on the 19 October 2018, the merging firms decided to bring the case themselves in front of the EC since it was reviewable nationally and involved potential concentration issues according to the merger guidelines.

[12] DevOps tools are what software developers need and use in the creation of their software. It consists of a coding tool and has many functionalities such as sharing it between users through repositories. It's the contraction of development and operation.

4.3.1. Relevant product and geographic market assessment[13]:

4.3.1.A. Development operation tools market:

DevOps tools are available for any individual or company in the development of their software. Microsoft and GitHub are both providers of such services, therefore overlapping is present in this segment of their activities. In particular on the supply-side of "*source code hosting services for version control and collaboration, and code editors/IDEs*" (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

Furthermore, a non-horizontal connection between the two entities is present because of the overlapping DevOps, in the "*source code hosting platform for version control and hand code editors/IDEs*". A non-horizontal connection is also present between the GitHub's "*source code hosting platform for version control and collaboration*" and Microsoft's "*Continuous Integration/Continuous Deployment tool*" that allows new sources codes to be implemented into the developing apps and software (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

Lastly, there is also a non-horizontal connection between Microsoft's cloud platform in IaaS (infrastructure as a service) and PaaS (platform as a service) activities and GitHub "*source code platform for version control and collaboration"* (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

In its attempt to define the product and geographic markets, the European Commission referred to the existing case-law. Considering past experiences and the reality of the market in hands, where substitutability on the demand-side is low it is bigger on the supply-side. Besides as the market analysis revealed that consumers were using many different DevOps tools at the same time, the EC decided to leave the market definition open. The same outcome was decided for the magnitude of the geographical market.

4.3.1.B. Source code hosting services for version control and collaboration:

Version control system is a part of the software during its development that offers the possibility to follow and organize changes in the source code. GitHub uses a decentralized version control, whereas Microsoft uses a centralized one. The changes made are kept into a

[13] In order to preserve EC's analysis meaning, we're going to use their naming concerning the different markets going forward.

repository, which is a virtual storage room that can be shared with the community, or kept private, by the means of source code hosting platforms that both companies provide.

Past case-law did not provide any boundaries to this type of market. The analysis was based once again on substitutability for both the demand and supply-side. The substantiality on the former seemed quite limited, whereas it was larger on the latter but still concerning according to the Commission, even though the investigation led to the conclusion that many players could enter this market for relatively low costs and time. Therefore, the product and geographic market definition were once again left open for the time of the investigation.

4.3.1.C. Code editors and IDEs:

This segment of market is dedicated to the creation of text code in order to develop software. It can be code editors, which are specifically designed for that purpose, or IDEs, which are more furnished code editors with extra features. Both companies provide code editing and IDEs service.

Once again, the reviewing party did not decide on any limitations of the market, neither in the past nor during the review. Therefore, both product and geographic markets were left open.

4.3.1.D. IaaS/PaaS services:

IaaS and PaaS are part of what is called cloud computing. It enables to outsource computing activities to third parties. Those two methods are offered by the third parties and provided to meet customers' needs regarding software and hardware demand. Only Microsoft is active in this sector and offers both alternatives through its cloud platform Azure.

In the past law-cases, further segmentation had been done. But in this case, the European Commission decided not to segment it further and left the definition open both product-wise and geographically as the notifying party claimed that IaaS and PaaS were part of the same bigger market.

4.3.2. Competition Implications of the merger:

As mentioned above, potential horizontal concerns have been raised by the Commission regarding the overlapping activities of GitHub and Microsoft in the supply of code hosting for version control and collaboration, as well as in code editors/IDES. In parallel, non-horizontal competitive concerns were raised regarding Microsoft's DevOps tools and GitHub source code hosting platform, Microsoft's IaaS/PaaS and GitHub source code hosting platform, as they are

complementary products when building a software. Finally, GitHub's data collection may be considered as crucial information for Microsoft and its competitors and possible foreclosing and harm to the market could result from the transaction.

4.3.2.A. Potential Horizontal anti-competitive effects analysis:

First, the reviewing party assessed the potential harm on the market for DevOps tools. The investigation led the Commission to think that no anti-competitive effects on this market would result post-transaction as they are plenty rivals allowing the effects to be limited. The EC report stated that there were many providers of DevOps and that Microsoft only represented 5-10% of the worldwide shares while GitHub represented 0-5%. It is worth notifying though that the merging firms did not provide EEA-wide information, and the Commission did not manage to get some off its own (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

Second, the investigation carried on the potential effects in the source code hosting services for version control and collaboration market. In this segment, the market shares of the merging firms are extremely high no matter the limitations the EC used for the market definition. The investigation's estimates were of 50-60% for GitHub and 5-10% for Microsoft, and those numbers would only slightly decrease if the market were to be split into centralized and decentralized.

The merging firms responded that their merger would not lead to competitive harm as Microsoft's objective when acquiring GitHub was to positively change potential users' perception toward it. Indeed, according to Microsoft, the American giant is not positively perceived by the software developer community and they wanted to attract the new generations by offering quality experiences with the help of GitHub's expertise.

Moreover, Microsoft was not a prominent player in this market (5-10%); barriers to entry and expansion are considered limited; there is a high presence of multi-homing and users could in theory very easily bounce from one provider to another because of the transposability of the source codes used.

The European Commission determined that the merger would not lead to horizontally non-coordinated anti-competitive concerns. They assumed, following customers' answers to the investigation, that Microsoft was not a substitute to GitHub on this market in many aspects. It appears that they targeted different types of customers and that many alternatives are indeed

easily available to users as multi-homing is common. Network effects are of no concerns as the market is accessible to new entrants in a rapid and non-costly manner.

Finally, the reviewing authority decided to dig into the potential effects on the code editors and IDEs segment. They quickly concluded that no harm would result from the merger transaction, even though the merging party had a sizeable joint amount of market shares of 30%, as enough competitors were present on the market. Furthermore, the aim was to create a user-friendly platform, thus limiting the access to GitHub's projects and code editor would just drive away the customers (European Commission, Case M.8994 - Microsoft/GitHub, 2018).

4.3.2.B. Potential non-horizontal non-coordinated effects analysis:

To begin with, the antitrust authority tackled the possible conglomerate non-coordinated effects that could arise on the DevOps tools market. The objective was to determine whether Microsoft could use GitHub's position on the source code hosting services to force customers to use its own products by either integrating both DevOps tools, by reducing GitHub adaptability with rivals' DevOps tools or by diminishing the adaptability of other tools with GitHub compared to Microsoft.

Those concerns were swiped away by the Commission's investigation. Indeed, it would have been against Microsoft motive to acquire GitHub to alienate its user base as they desired to change their own image. It has also been estimated to likely conclude in a failure for the following reasons. First, the users themselves, expressed that they would change without any hesitation if Microsoft were to integrate both services or would at least reduce their use of it, same goes if the interoperability or adaptability were to be hinder. Second, it has been pointed out that a few alternatives were at the customers' disposal on the market.

Then, the analysis turned towards the IaaS and PaaS market, to determine if anti-competitive effects were likely to happen or not. The concerns were the same: i.e., integration of Microsoft's Azure and GitHub; a reducing or blockade of the interoperability between rivals and GitHub's IaaS and PaaS, and by then foreclosing competitors.

The EC's conclusion was the same as presented above: it would be in contradiction with the motive of acquisition; not likely to happen as customers would leave for competitors or at least drastically reduce the use of the platform. In addition, a number of other providers are available or could easily appear on the market

4.3.2.C. Potential vertical non-coordinated effects analysis:

To conclude its analysis, the reviewing party conducted an examination upon vertical anti-competitive effects. The doubts turned around the data that GitHub was collecting and how Microsoft could try to gain advantage by either deny or reduce access to this public data. GitHub data collection is divided in three part: "*user-generated content, users' personal information, and metadata*" (European Commission, Case M.8994 - Microsoft/GitHub, 2018). The first concerns source codes and data generated through GitHub tool. The second is the data regarding users' personal information such as names, email addresses and so on. Metadata embrace co data from GitHub activity itself, users' tendencies and demand, as well as everything relevant to grasp the firm's operations and improve its revenues and features.

The investigation led to recognize that Microsoft was unable to foreclose access to the major part of the data because it was already publicly accessible through Git protocols: something that GitHub (a firm active using the Git protocol developed by one of the founder of Linux and accessible to everyone (M. Nestor, 2016)) doesn't have the means to control. Moreover, terminating the access to user-generated data would drive customers away as it would reduce the interoperability with other platforms, and it would have a negative impact on both Microsoft and GitHub reputation and thereby make users turn to rivals. Therefore, denying access to such data would be unlikely to result in anti-competitive effects as it is not perceived by the market players as sensitive and vital information for the market's working and as other parties could provide the data.

Eventually, the part of data not disclosed by GitHub (personal data) would not raise any concerns as it was not available to competitors. It has been reported that Microsoft's post-transaction access to this data would not be harmful given that, to comply with the GDPR regulations in place at European level, they will have to change the terms of use and to make users aware of any use of those information, which would likely hinder users' willingness to use the platform.

4.3.3. Conclusion:

For all the previous reasons, the Commission cleared the transaction without any need for remedies nor modifications.

4.4. Microsoft – Skype merger analysis:

This case has been purposely chosen knowing that the thresholds were respected, but because in our opinion, it is interesting to see the evolution from this 2011 case to the 2018

cases reviewed above, and to analyze the difficulties the Commission's had to face and how its case analysis has evolved since then.

This case concerns Microsoft, that has been already described in the previous analysis, though it is worth adding that Microsoft possess a companies-oriented communication service called "*Lync"* as well as a consumer-oriented communication service called "*Windows Live Messenger*". Skype, which is a company providing a "*communication software*" called Skype, has three main features according to the investigation: "*Instant messages (IM), Voice Calls and Video Calls"* (European Commission, Case M.6281 - Microsoft / Skype, 2011).

The European Commission investigated the consumers and companies' communications services markets separately as they required different needs, and because of the potential horizontal concerns that could rise from their overlapping activities. Microsoft's position in providing operating systems could also lead to conglomerate effects that has been investigated as well.

4.4.1. Defining the Relevant Markets:

4.4.1.A. Consumer communications services:

The merging parties argued that consumer communications services should not be further segmented as it is a product, that needs to contain many features and be available on various platforms to be effective and attractive. At the time, their argument was solidified by the growth of FB and Google+, which were attractive services because they combined and offered many different features (network, calls, expression space). Thus, trying to split the market based on the operating system, the features or both, would not have led to a realistic picture.

Nonetheless, the EC still decided to segment the consumer communications services market with respect to its "*functionalities*" (the features: IM, voice and video calls), "*platform*" and "*operating system*" (European Commission, Case M.6281 - Microsoft / Skype, 2011). In the first segment, the three features were seen as very substitutable by the Commission as the consumer could switch between them effortlessly. The second segment put into light that consumers were actively multi-homing on the market and that the services should be available on every type of device. The last segment highlighted the interconnection between devices and platforms for consumers and the presence of both products on the majority of the available platforms while still being under pressure by the large number of rivals. For those reasons, the EC had troubles justifying and defining a specific product market using the different segments

and decided to leave the boundaries open as in no case competition concerns were raise. The same conclusion was reached about the definition of the geographic market that was defined as at least be EEA-wide if not bigger but left to be discussed if needed.

4.4.1.B Enterprise communications services:

Here again, the notifying party argued that there was no need for further segmentation as the availability on all platforms and features was crucial in this market. Indeed, companies have higher standards and expectations for the tools they use, therefore the highest quality is demanded.

Nonetheless, the European Commission decided to use the same segmentation as for the consumers communication services, adding only one segment i.e. the size of the customer base/of the firms. Similarly, the antitrust authority left open the exact boundaries of the product market. The market was also estimated to be EEA-wide or left open.

4.4.2. Competition Implications of the merger:

4.4.2.A. Consumer communications services:

It has been established during the review that the consumer communications services market was "*a nascent and a growing sector*" and that there appeared to be a "*shift away from PC to other devices*". In addition, those services usually are and were free, for example, 75% of Skype users base would leave if it were to become paid, it was therefore labelled as a highly price sensitive market by the Commission (European Commission, Case M.6281 - Microsoft / Skype, 2011).

During their investigation, the antitrust authorities asked for market shares based on the number of users rather than the revenues of the companies, because of the free business model and the speed at which it is evolving, making it likely for consumers to switch from one provider to the other. Anyhow, it was still reported that market shares are a poor proxy of market power in this type of market.

They also analysed innovation. The apps being free, qualitative and innovative features are needed to stay relevant and to develop on the market. This why, the Commission assessed innovation as the main competition engine in this instance. However, there seemed to be some barriers to entry and expansion within the market. Indeed, well-established companies and reputation seemed to be a deterrent for entering firms, as they have to fight against already established rivals on multiple platforms and with revenues generated on other sectors to help them sustain their development phase. Yet, those concerns were not judge significant as,

according to testimonies of the merging firms' competitors, a firm could quickly and relatively cheaply, implement itself on the market But some network effects could still be considered as possible barrier to entry, even though their effects seemed to be cancelled by the fact that interactions (calls and IM) are generally directed to a small group of person, "*Inner circle*", and therefore it is relatively simple for the whole group to change provider (European Commission, Case M.6281 - Microsoft / Skype, 2011).

Capital investment	EUR 750 000 – EUR 9,7 million
Estimated time to bring product to market	8 – 24 months
Size of user base one year after launch	2.4 million – 17 million

Figure 6: Investment estimation to enter the market from Fring, Tango and Tinychat (European Commission, Case M.6281 - Microsoft / Skype, 2011)

On top of that, the EC reminded the fact that a high number of new players appeared on the fast-growing sector and therefore, no barriers to entry, expansion or innovation was detected.

4.4.2.A.1. Potential horizontal anti-competitive effects:

Both companies are providing consumer communications services, one as Skype and the other as Windows Live Messenger. There is an overlapping of their activities on Microsoft's Windows OS mainly. On this market, 90% of the users utilized WLM on Microsoft's operating system while it was around 5% on the others. Skype is used around 70% on Windows and 10% on iOS (Apple). Remember that the evaluation of those market shares is based on the number of users using a product and not on revenues. The Commission then proceeded to compute market shares on each feature (IM, voice calls and video calls), and concluded that post-transaction, the merging firms would have sizeable shares on IM and voice calls and would be leaders (with around 80%) on video calls. A ll of that on windows operating system as the others were put aside for the purpose of the analysis (European Commission, Case M.6281 - Microsoft / Skype, 2011).

Nonetheless, the reviewing party determined that WLM's user base was decaying for a while now (2009-2011), that the markets are growing extremely fast, that entry happens frequently and that they are very competitive. There seemed to be a shift towards smartphone, on which Microsoft is not prominent. Therefore, it was concluded that no significant horizontal anti-competitive effects would arise following the merger.

4.4.2.A.2. Potential conglomerate anti-competitive effects:

The complementarity of Microsoft and Skype's services led to a conglomerate anti-competitive effects' investigation. To begin with, Microsoft could either deteriorate Skype's experience on competing operating systems or only upgrade Skype experience on its own operating system. Both options leading to a differentiation and a worsening of the non-Windows users. Another option could be to merge both product (either Skype and Windows or Skype and Office) to benefit from each other users base and thereby claim or reinforce any dominant position on the markets. Last, some bundle or any commercial ties could be used to attain that objective and may lead to exclusionary practises.

The European Commission investigation led to the conclusion that the merging firms had neither the ability nor the incentive to engage into such practises as they would alienate their consumer base and would be swiftly replaced by their competitors. Microsoft's WLM consumer base is decaying and they intend to surf on Skype's one to gain attractiveness again. Therefore, reducing the interoperability of the app would be counter logical. This argument has been confirmed by the CEO of Microsoft at the time (10th of May 2011), Steve Balmer: "*Microsoft will continue to support Skype on non-Microsoft platforms because it's fundamental to the value proposition of communications*". About the tying and bundling issue, consumers only try to link to a small inner circle. Therefore, introducing constraints, in the forms of bundling, would lead to users changing app. Therefore, no bundling was expected to have any success on the market. Therefore, the EC concluded that no conglomerate effects were likely to arise following the merger (European Commission, Case M.6281 - Microsoft / Skype, 2011).

4.4.2.B. Company communications services:

The company communications services were also depicted as a "*fast growing sector*" as well as experiencing a "*consumerization*" of the products (European Commission, Case M.6281 - Microsoft / Skype, 2011). What was meant by that statement was that employees required functionalities that they could also access for their daily communication applications. Therefore, while being more developed features-wise and quality-wise, those company communications services need to possess the (same?) features and accessibility as the consumers' applications.

4.4.2.B.1. Potential horizontal anti-competitive effects:

The objective was to determine whether Microsoft's Lync (company communication service) and Skype were overlapping or competing products that could have led to distort the competition. But it appeared that Skype was not active in the enterprise communication service

market or only in a limited manner within the small and medium-sized enterprises (SME). Respondents to the investigation indeed claimed that Lync was not seen as a Skype competitor and that both companies were operating in different markets. Therefore, no further analysis was required, and no horizontal concerns were raised.

4.4.2.B.2. Potential conglomerate anti-competitive effects:

The Commission did not envisage to review this possibility at first as both services are not active in the same market. However, complains from the market players pushed the antitrust authority t assess the situation. Their concerns were that Microsoft could decide to integrate both services, foreclosing competition by bundling practices and gaining an overwhelming position.

However, the reviewing authority determined that enough competitors were available on the market for companies to switch from Microsoft. Also, none of the merging firms' services were dominant on this segment. Therefore, Microsoft did not possess neither the ability nor the incentive to enter such practices and no conglomerate effects were to be found.

4.4.3. Conclusion:

For the reasons mentioned above, the European Commission decided to unconditionally clear the case.

4.5. Cases analysis conclusion:

The four cases reviewed above enabled our analysis to move from theoretical issues to concrete ones. Each case is connected to specific criticisms made earlier and demonstrates the difficult position in which the European Commission finds itself when assessing the anti-competitiveness impact of M&A on technologically, digitally and data-oriented companies.

First of all, the under-enforcement trend suggested in the previous chapter seems to be supported by the analysis of the 4 cases reviewed. Indeed, the entirety of the analyzed cases were cleared unconditionally. Even the Apple – Shazam merger (that went into phase two) and the Facebook – WhatsApp merger were approved without any remedies even though many horizontal and non-horizontal concerns were raised during the review process.

Besides, out of the four cases, only one was caught directly into the Commission's net. Which, when looking at the names of the firms involved is rather surprising. But we have seen that it is specific to the technologically, digitally and data-oriented sector given that the revenue threshold applied by the EC is not adapted to it. WhatsApp, while being an established name,

took many years to start making revenues. The point of focus of the firm prior to the time it was acquired by Facebook was to develop its user base. This sector has a peculiar way of evolving, where it first increases its user base before translating this increase into revenues once their app/service has become inevitable. But even the revenues are made in a different way than in most other markets. Indeed, it is through data gathering and targeted advertisement that those firms have the opportunity to generate increasing revenues. Therefore, even with the flaws exposed before, a transaction-based threshold or a Safe Harbor approach could be more suitable to assess these types of cases. This option is already being explored by the Austrian and German AAs and only the future will tell how far it will be implemented. There is a dilemma between general rules covering every market but leaving the door open for under-enforcement, or specified rules for each market but potentially leading to over-enforcement and the related workload.

This also relates to the attacks made recently towards the European Commission regarding their approach to worldwide competition and the lack of harmonized way of thinking within Europe. Indeed, as explained in chapter 3, the German and French governments are arguing for the need of an overhaul of the merger guidelines to allow for Champions to defend Europe against Asian and American big and threatening companies. This idea follows the merger case of the German company Siemens with the French company Alstom which was denied by the EC because of the risks it represents for European consumers (V. Georis, 2019).

Second, as most of the companies selected above were running "free-services" business type models, the AA at play had trouble assessing their values in a tangible manner in order to determine the effects of the merger or acquisition. The biggest problem appeared when Data had to be assessed. The collection of data is something new and freshly explored business-wise that, each time, has its roots well beyond the market investigated by the AA. Quantifying the value of a sensitive piece of information with the actual tools used by the EC appeared complicated and even misleading to some degree, even more so when the guidelines themselves do not define what a sensitive information is.

In addition, the value of those firms can also reside in the growth opportunity they represent for bigger players rather than their actual value. As seen in the Microsoft/GitHub case where the acquisition of GitHub by Microsoft was motivated by the reputation and network of GitHub, or even in the Facebook/WhatsApp's merger where Facebook's goal was to create a complete network around it covering all the facets of its user's life. The aim is to exploit the complementarities these mergers can create for a big player when combined with its own

network, infrastructure and know-how. The growth potential can be facilitated and become exponential if the mergers concern innovative start-ups that are developing the technology while the established firms will integrate it.

Third, the lack of adapted tools to analyze this type of companies seemed overwhelming. Indeed, in most cases, we have seen that the definition of the product and geographical markets was left open for discussion. Either because the geographical boundaries were blurred or either because the selection of a narrow or wide definition of the markets for the product of the merging firms, was not of the utmost importance as everything is interconnected and consumers' ability to multi-home makes the analysis very complex. Besides, in free-services markets and competition for attention and data, the usual approach of the European Commission to base its tests on prices and substitutability, could not be applied. The concept of the blind spot expressed by Wu seems indeed evident, as well as the growing concern and analysis about overlapping consumers. The reviews of WhatsApp, GitHub and Shazam highlighted that the bigger the overlapping, the bigger the potential negative effects[14] through network, that are not captured in price-based tests like SSNIP.

This has also been observed in the limited use of market shares. Although market shares were calculated in every case, all the notifying parties argued about the usefulness of the tool based on revenues to assess their positions. Most of the time, the tools have to be adapted and the position of the companies had to be reviewed through another lent to be somewhat relevant (for example, the use of the users' base in Microsoft/Skype merger). Besides, even when alarming levels were detected (e.g. 80% of market shares in the Microsoft/Skype case), the anti-competitive doubts were still swept aside as the information grasped through market shares was not the one raising significant concerns. What really mattered was the users base and whether they overlapped or not. In addition, the volatility of market shares was a common factor in the cases analyzed, as firms can quickly move from a dominant position to a marginal player because of the ease with which consumers can navigate between services and offers on those markets. This could, maybe, be partially countered by a reversal, or at least the rethinking, of the burden of proof. Both FB/WA and MS/GH cases were an example of the lack of resources the Commission has to work with when scrutinizing these mergers and assessing firms' position on their market. A reversal of the burden of proof would allow access to more tangible information held by the merging firms and thereby a better understanding and analysis of the

[14] as expressed by Prat & Valletti.

situation. It would also help avoiding the emergence of scandals like the one Facebook is now going through with Cambridge Analytica.

Finally, there seems to be a lack of consistency in the European Commission decisions and analysis *for instance with regards to the definition of sensitive information, and ultimately its decisions regarding a significant impediment to the effective competition*. Indeed, as highlighted with the Facebook/WhatsApp merger, the decision making of the reviewing parties may sometimes bring uncertainty as they assess each merger on a case-by-case basis and often time contradict past judgments. This uncertainty and inconsistency in the guidelines and procedures create an uncomfortable environment for firms about how and when they should declare their mergers and activities. A more uniformized and more consistent processes would bring less chaos and would lead to a more stable and impartial justice.

Conclusion:

As more and more cases of merger in the data-oriented sector will obviously rise, a revision of the European merger guidelines appears to be inevitable. The European Commission has to be ready for what lays ahead, as European firms as well as giant foreigners, look to take possession of this flourishing market. Indeed, firms like Deliveroo are being attempted to be acquired by Uber (S. Butler, 2018), or Spotify who is looking for mergers and acquisitions throughout Europe (Sweney, 2019). These are only a few names we can think of in the present days. But to face the future, a change in the mindset and approach of the European Commission has to take place to better reflect the reality.

The movement has already begun at national levels, with new antitrust thresholds, or at the European level with the GDPR regulations. But is it enough? A decision has to be taken between applying general rules and safety triggers (referral tool) or using specific regulations. But work and time constraints exist. As for now, the process cannot be qualified as bad or good, but rather calls for attention and improvements for the times to come.

Bibliography:

1. TheEconomist. (2017, May 6). *The world's most valuable resource is no longer oil, but data*. Retrieved from TheEconomist: https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data

2. A.Grunes, & M.Stucke. (2015, April). No mistake about it: the important role of antitrust in the era of big Data. theantitrustsource.

3. Ramirez, E. (2014). *Big Data: A Tool for Inclusion or Exclusion.*

4. OECD. (2014). *ATA-DRIVEN INNOVATION FOR GROWTH AND WELL-BEING: INTERIM SYNTHESIS REPORT 10.*

5. P.Stockhaus. (2015). *How forceful is EU merger control.* Stockholm.

6. P.Belleflamme, & M.Peitz. (2014). Industrial Organization: Markets and Strategies. Cambridge.

7. C.Hatton, D.Gabathuler, & A.Lichy. (2018, February). Digital markets and merger control in the EU: Evolution, not revolution. *CPI Antitrust Chronicle*.

8. M.Bradley, A.Desai, & E.Kim. (1988). Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms. Journal of Financial Economics.

9. L.Hand. (1945, March 12). United States v. Aluminum Co. of America, 148 F.2d 416 (Circuit Court of Appeals, Second Circuit).

10. M.E.Porter. (2002, May 30). Competition and antitrust: A productivity-based approach. Harvard Business School.

11. European Union. (2012, October 26). Consolidated of the Treaty on European Union. Official Journal of the European Union.

12. Kroes, N. (2006). *Report on competition policy.*

13. Ghellinck, E. D. (2017). Session 1: Objectives and Instrumets of competition policy. *Economics of competition policy*.

14. European Commission. (2013, 08 13). *Merger control procedures*. Retrieved from European Commission: http://ec.europa.eu/competition/mergers/procedures_en.html

15. Slaughter, & May. (2018). *The EU merger regulation: An overview of the European merger control rules.*

16. European Commission. (2004). *Council regulation (EC) n°139/2004 on the control of concentration beteween undertakings.*

17. C.Hatton, D.Gabathuler, & A.Lichy. (2018, February). Digital markets and merger control in the EU: Evolution, not revolution. *CPI Antitrust Chronicle*.

18. FTC Premerger Notification Office. (2009). *What is the premerger notification program ? An overview.*

19. Federal Trade Commission. (2019). *Merger Review*. Retrieved from Federal Trade Commission: https://www.ftc.gov/enforcement/merger-review

20. Federal Trade Commission. (2019, March 7). *HSR threshold adjustments and reportability for 2019*. Retrieved from Federal Trade Commission: https://www.ftc.gov/news-events/blogs/competition-matters/2019/03/hsr-threshold-adjustments-reportability-2019

21. M.Motta, & M.Peitz. (2019, March). Challenges for EU Merger Control. *Discussion Paper Series - CRC TR 224*. Germany ; Spain: Collaborative Research Center Transregio 224

22. European Commission. (2004, May). Horizontal Merger Guidelines. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentration between undertakings*. Journal of the European Union.

23. FTC, & DOJ. (2010, August 19). Horizontal Merger Guidelines. United States of America.

24. D. B. Hoffman. (2018). *Vertical Merger Enforcement at the FTC.* Washington D.C.

25. European Commission. (2008). *Guidelineson the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings.* Official Journal of the European Union.

26. C. Shapiro. (2010). The 2010 horizontal merger guidelines: From Hedghog to Fox in forty years. *Antitrust Law Journal vol.77*, pp. 701-759.

27. J. E. Jr. Kwoka. (2013). Does Merger Control work ? A Retrospective on U.S. Enofrcement Actions and Merger Outcomes. *Antitrust Law Journal*, 619-650.

28. T.Duso, K.Gugler, & F.Szücs. (2013). An empirical assesment of the 2004 EU merger policy reform. *Economic Journal, 123(572)*, pp. F596-F609.

29. Reuters.com. (2017, October 26). Tiwtter says it could first-ever profit, shares surge. *Reuters*.

30. European Commission. (2014, May 19). Case M.7217 – Facebook/WhatsApp.

31. Stauber, P. (2018, February). New rules for mergers in difital economy in Germany. *Antitrust Chronicle*, pp. 29-63.

32. J.Posaner, & T.Larger. (2019, April 4). *Paris and Berlin rail against merger block in Brussels*. Retrieved from Politico: https://www.politico.eu/article/paris-and-berlin-rail-against-merger-block-in-brussels-alstom-siemens/

33. M.Motta, & M.Peitz. (2019, February 20). *Competition policy and European firms' competitiveness*. Retrieved from VOX CEPR Policy Portal: https://voxeu.org/content/competition-policy-and-european-firms-competitiveness

34. C. Cunningham, F. Ederer, & S. Ma (2018). Killer Acquisitions. Yale School of Management WP.

35. L-H.Röller, & M.De La Mano. (2006, April). The impact of new substantive test in European merger control. *European Competition Journal*, pp. 9-26.

36. European Commission. (2015). *Case M.7276 - GSK/Novartis.*

37. A.Prat, & T.Valletti. (2018, July 26). *Merger policy in the age of Facebook.* Retrieved from VOX CEPR Policy Portal: https://voxeu.org/article/merger-policy-age-facebook

38. Wu. (2018). Blind Spot: The attention economy and the law. *Antitrust Law Journal 82*.

39. Valletti, & Prat. (2018). Attention Oligopoly.

40. Statista. (2019). *Annual revenue of WhatsApp from 2012 to 1st half 2014 (in million U.S. dollars)*. Retrieved from Statist: https://www.statista.com/statistics/346269/whatsapp-annual-revenue/

41. A.Myers. (2013, October 16). *How Waze grew from startup to billion dollar google acquisition*. Retrieved from CMSWIRE: https://www.cmswire.com/cms/customer-experience/how-waze-grew-from-startup-to-billion-dollar-google-acquisition-demo2013-022835.php

42. Furry, R. b. (2014, January 13). *Mobile app grtwh continues to rise*. Retrieved from software intel: https://software.intel.com/en-us/blogs/2014/01/13/mobile-app-growth-continues-to-rise

43. Ghostery Panel data. (2013, January - March). Share of data collection accross the web.

44. Vestager, M. (2017).

45. P.Teffer. (2017, May 18). *EU fines Facebook €110 million for WhatsApp lie*. Retrieved from euobserver: https://euobserver.com/digital/137953

46. J. C. Wong. (2019, March 18). *The Cambridge Analytica scandal changed the world - but it didn't change Facebook*. Retrieved from The Guardian: https://www.theguardian.com/technology/2019/mar/17/the-cambridge-analytica-scandal-changed-the-world-but-it-didnt-change-facebook

47. P.Teffer. (2017, May 18). *EU fines Facebook €110 million for WhatsApp lie*. Retrieved from euobserver: https://euobserver.com/digital/137953

48. European Commission. (2018). *Case M.8788 - Apple / Shazam.*

49. IFPI. (2017). *Global Music Report 2017: Annual State of the industry*. Retrieved from Global music report: https://www.ifpi.org/downloads/GMR2017.pdf

50. Statista. (2017, Septembre). *Evolution of digital music streaming market in Europe by revenues and subscibers, 2016-2022.*

51. Goldman Sachs. (2017). *Expected growth of gross revenues of the digital music streaming sector 2018-2023.*

52. European Commission. (2018). *Case M.8994 - Microsoft/GitHub*

53. M. Nestor. (2016, May 2). *Git 2.8.2 Popular source code management system released with over 18 bug fixes*. Retrieved from Softpedia: https://news.softpedia.com/news/git-2-8-2-popular-source-code-management-system-released-with-over-18-bug-fixes-503591.shtml.

54. European Commission. (2011). *Case M.6281 - Microsoft / Skype.*

55. V. Georis. (2019, February 6). *La Commission Européenne rejette la fusion entre Alstom et Siemens*. Retrieved from L'Echo: https://www.lecho.be/economie-politique/europe/general/la-commission-europeenne-rejette-la-fusion-entre-alstom-et-siemens/10094891.html

56. S. Butler. (2018, September 21). *Uber bid to buy Deliveroo could give founder £150m payout*. Retrieved from The Guardian: https://www.theguardian.com/business/2018/sep/21/uber-bid-buy-deliveroo-hits-just-eat-shares

57. Sweney, M. (2019, February 6). Sp*otify buys podcast firms Gimlet and Anchor*. Retrieved from The Guardian: https://www.theguardian.com/technology/2019/feb/06/spotify-buys-podcast-firms-gimlet-and-anchor-streaming-profits-music