Data-driven mergers: a call for further integration of dynamics effects into competition analysis

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ABSTRACT

This report reviews data-driven mergers by focusing on two main competition challenges. Firstly, it analyses whether data-platforms may pose an unreplicable competitive advantage to entrants, and to what extend data-driven indirect network effects may harm competition and innovation. Secondly, it reviews the intersection between competition and privacy, and the quantification of the effects of quality reduction. The report argues that a more dynamic approach can contribute to address those challenges better than a pure static framework, and proposes a re-analysis of the European Commission's merger decision regarding Facebook/WhatsApp. The report concludes by proposing that dynamic effects, consumer choice, and merger control be analysed more holistically.

Keywords: Facebook/WhatsApp, competition economics, merger control, big data, dynamic analysis, network effect, privacy

RESUMO

O presente artigo explora dois desafios ao direito concorrencial decorrentes dos atos de concentração envolvendo *big data*. Primeiramente, analisa-se em que condições as plataformas digitais podem representar uma vantagem competitiva não replicável e como as externalidades indiretas decorrentes do *big data* poderiam prejudicar a concorrência e a inovação no mercado. Em segundo lugar, foca-se na intersecção entre concorrência e privacidade, sugerindo análises quantitativas para sua mensuração. Este trabalho argumenta que a adoção de um perspectiva mais dinâmica pode endereçar ambos os desafios de modo superior à análise puramente estática, propondo a revisão da aprovação do ato de concentração Facebook/WhatsApp pela Comissão Europeia. O trabalho conclui propondo que os efeitos dinâmicos, a escolha do consumidor e o controle de estruturas sejam analisados de forma mais holística.

Palavras-chave: Facebook/WhatsApp, economia da concorrência, atos de concentração, big data, análise dinâmica, externalidades de rede.

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1. Introduction

Data-driven mergers are the transactions that aim at acquiring, combining and/or monetizing large amounts of commercially valuable data gathered from multiple sources and formats[391]. In the digital markets (e.g., e-commerce, social networks, search engines, online advertisement, etc.), examples can be found in the mergers between *Verizon/Yahoo!* (2016), *Microsoft/LinkedIn* (2016), *Facebook/WhatsApp* (2014), *Google/DoubleClick* (2008)[392], among many others[393].

Those transactions benefit from the developments of artificial intelligence, data mining and machine learning, allowing data to be analyzed for insights that can reduce product and process innovation costs. Indeed, consumers' data is at the core of the business model[394] and

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[391] Doug Laney crafted the pioneer definition of big data in three dimensions: (i) volume: data comes in large amount and it is collected from a variety of sources such as business transactions, social media, information from sensor, machine-to-machine, etc.; (ii) velocity: data streams in at an unprecedented speed and must be dealt with in near-real time; and (iii) variety: data can be structured and unstructured and comes in all types of formats, e.g., numeric or text documents, e-mail, video, audio, etc.. See Laney (2001). More recently, extra dimensions have been added, including: (iv) variability; (v) veracity; (vi) validity; (vii) vulnerability; (viii) volatility; (ix) visualization; and (x) value. See Firican (2017).

[392]*Verizon/Yahoo!,* case COMP/M.8180, EC's Decision on 21.12.2016; *Microsoft/LinkedIn*, case COMP/M.8124, EC's Decision on 6.12.2016; *Facebook/WhatsApp,* case COMP M.7217, EC's Decision on 03.10.2014, and; *Google/DoubleClick,* case COMP/M.4731, EC's Decision on 22.07.2008. Other big data mergers include *Telefónica UK/ Vodafone UK/ Everything Everywhere/ JV*, case COMP/M.6314, EC's decision on 04.09/2012 and *Publicis/Omnicom,* case COMP/M.7023, EC's decision on 09.01.2014

[393] As reported by The Economist (May, 2017), recent data-driven deals also involved: Facebook/Instagram for $1 bn (2012), Alphabet/Waze for $1.2 bn (2013), IBM/The Weather Company for $2 bn (2015), IBM/Truven Health Analytics for $2.6 bn (2016), Intel/Mobileye for $15.3 bn (2017), Microsoft/SwiftKey for $0.25 bn (2016), Oracle/BlueKai for $0.4 bn (2014), Oracle/Datalogix for $1bn (2014).

[394]Described as a "raw material for digital business models", personal information has become a factor of competition used to improve products and targeted advertising. See Monopolkomission (2015, p. 36).

largely explain the market power enjoyed by the world's most valuable public companies, namely Apple, Alphabet, Microsoft, Amazon, and Facebook[395].

This reports focus on two main competition challenges posed by data-driven mergers. First, the trend of increasing concentration of super-platforms is prompting a debate over whether or not we need new tools and more severe competition enforcement to guarantee contestability in data platforms[396]. Is market power entrenched or entry hampered when bigger data firms take over smaller ones?

The second challenge is related to the intersection between competition and privacy. Data-driven platforms generally offer services for no monetary fee to one side of the platform. When services are offered for "free", how authorities can measure the effects of a merger in non-price dimension of competition, such as quality and privacy?

This report argues that a more dynamic analysis can contribute to address those challenges better than a pure static competition analysis. Where predictive fact-finding can be supported by economic theory and empirical evidence, a dynamic approach is more suitable to address competition concerns in rapidly evolving data-driven economies. Therefore, a re-analysis of the European Commission ("EC") approval decision regarding Facebook/WhatsApp is suggested to test whether its outcome would have changed if a more forward-looking analysis were taken into account.

The remaining of this report is organized as follow: **Section 2** analyzes the main economic characteristics of data-driven markets, and how user information can yield those platforms an unreplicable competitive advantage. **Section 3** discusses introducing privacy considerations into the competitive assessment. **Section 4** explains how dynamic analysis can contribute to improve data-driven mergers' review. **Section 5** evaluates what could have changed if a more dynamic analysis were adopted in the Facebook/WhatsApp merger analysis. **Section 6** concludes by summarizing the main takeaways and proposing that dynamic effects, consumer choice, and merger control be analyzed more holistically.

2. Data-driven markets: can concentrated market still be competitive?

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[395] Based on the Financial Times Global 500 ranking of 2017, Apple, Alphabet (Google), Microsoft, Amazon, and Facebook are among the 8 publicly traded companies having the greatest market capitalization.

[396] For those who are pro more enforcement, see, e.g., the "Brandeisian Movement" summarized by Dayen (2017), The Economist (May 2017 and September 2016), OECD (2016, p. 20-24), EDPS (2016, p. 7-13), Khan (2017), Taplin (2017), Ezrachi and Stucke (2016), Thompson (2016), Dayen (2016), and Lanier (2014). For those who are against, see e.g., Lamadrid and Villiers (2017), as well as Kevin Murphy at the Conference: *Does America have a concentration problem?* March 28, 2017, Chicago, US.

Data-driven markets often give consumers the impression that competition is fiercer, prices are more transparent[397], and monopolization is less likely. Some claim that data-driven markets have nearly zero entry barriers[398] because data is ubiquitous, low cost, and widely available. Consequently, market shares are clearly not a good proxy of market power because competition is just "one click away" (Schmidt, 2015). At anytime, coming from a garage somewhere, Schumpeterian "gales of creative destruction" could displace Google or Facebook in the same way that they displaced Yahoo! and MySpace. Thus, most calls for more antitrust intervention against data-driven platforms should be regarded as merely "antitrust populism" (Lamadrid and Villiers, 2017, p. 3).

On the other hand, many consider that data's nature favors long lasting dominance and are concerned about the entrenchment of data-driven platforms to the detriment of innovation[399], consumer welfare[400], and even democracy[401]. To navigate in this debate, this report focus on three main characteristics of data-driven markets: (i) concentration as a proxy for market power; (ii) data as an irreplicable asset; (iii) higher entry barriers mainly caused by indirect network effects; and (iv) the tendency for market tipping in favor of the data-driven incumbent.

2.1 Setting the debate: concentration vs. market power

Apple, Alphabet/Google, Microsoft, Amazon and Facebook have enjoyed high market shares, reaching billion of users, and significant profits[402], some for over a decade now (EDPS, 2016). Data-driven markets have an intrinsic trend of becoming even more concentrated (OECD, 2016). Such digital concentration has prompted calls for the tech giants to be broken up (as reported by The Economist, 2017). The so-called Brandeisian movement considers that

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[397] On the debate about how price transparency can backfire via anticompetitive price discrimination and logarithm collusion, see OECD (2016), and The Economist (May 6, 2017).

[398] In November 26, 2012, Ron Wyden, U.S. senator, declared in the FTC's investigation against Google's search bias case: "*compared to almost any other market in the history of antitrust regulation, online search has effectively zero barriers to entry*", https://www.wyden.senate.gov/download/?id=94C57310-59D3-4D6E-84BE-FF957413BCC3&download=1.

[399] As observed by The Economist (September 17, 2016) the number of startups in the US is the lower since the 1970s.

[400] Authors like Stucke and Grunes (2017 and 2016) have tackled the commonly asserted "myths" regarding the contestability of data-driven markets.

[401] See Dayen (2017).

[402] According with Jonathan Taplin, Alphabet/Google has 88% search advertising and is valued at $530.6 bi, Amazon has 75% in online book sales and is valued at $362.4 bi, and Facebook/Instagram/WhatsApp 74% market share of mobile social and is valued at $357 bi. Google and Facebook have each nearly 2 billion customers. See the Conference: *Does America have a concentration problem?* March 28, 2017, Chicago, US, https://research.chicagobooth.edu/stigler/events/single-events/march-27-2017.

the fear of antitrust agencies of overreaching fails to serve the public[403]. In face of the "tsunami" of digital mergers, US Senators doubt that the agencies are getting the job done (Dayen, 2016). The other side of the spectrum criticizes the emphasis on concentration as misplaced. For Sidak and Teece (2009, p. 36-37), policymakers should even overturn the presumption that more competitors are always better, as "high market share may indicate not only superior performance, but also strong selection at work in the industry".

While competition law is not merely concerned with concentration, but with market power and the ability of dominant firms to subvert the competitive process (Hesse, 2016), I believe that concentration levels are an important screening device for competition authorities. Data innovation has brought high R&D level, and benefit consumers with new products at even zero monetary fees. However, as seen below, data characteristics can help perpetrate the quite concentrated nature of data-driven platforms (Graef, 2015). Thus, the remaining question is: can the informational power become monopoly power?

2.2 Data as a competitive advantage

Due to the alleged non-rivalrous[404] nature of data, some authors claim that no incontestable market power could be derived from it (Tucker and Wellford, 2014). Indeed, factual information such as name, age, gender, home address, etc. are commonly provided to multiple entities, but they are not the kind of inputs that search engines, social networks or e-commerce need to provide relevant services to both sides of their platforms (CMA, 2015, paras 2.53-2.54). The volume, scope, and precision of analysis of data gathered nowadays cannot be compared to a brick-and-mortar world.

Successful data-driven platforms have an established user base allowing them to collect, store and process large, real-time data about users last minute interests, sentiments, influence, and behavior[405]. Specifically, search engines care about search queries history and clicked links. Social networks care about profile information, and constructing the user's social graph. E-

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[403] As described by Dayen (2017, p. 4-5), the "New Brandeis movement" is formed by a group of scholars that has rebelled against Chicago-school dictates. For the Supreme Court Judge Louis Brandeis: "we can have democracy in this country, or we can have great wealth concentrated in the hands of a few, but we can't have both."

[404] A non-rivalrous good means that the cost of providing it to a marginal individual is zero (Cornes and Sandler, 1968). In big data, it means that the same data may be used by different firms at the same time.

[405] This report acknowledges that big data has to be processed by logarithms and AI to become valuable. But the comparative importance of the former compared to the later has been addressed even by Google's chief scientist in 2010, who peremptorily affirmed that "*we don't have better algorithms than anyone else. We just have more data*". See Asay and O'Reilly (2010).

commerce cares about users' purchase history. This information is far from being easily collected and it is not readily available on the market (Grunes and Stucke, 2015).

Moreover, the fixed costs involved in setting up the necessary tools for collecting and analyzing data are high. Third party access is also a remote possibility. While platforms like Facebook and LinkedIn prohibit third parties from scrapping content off its platforms, Google restricts portability of advertising campaigns (Graef, 2015), not to mention all the patents involved. The reason for this protection wall is that for data-driven markets, data is the input that strength both sides of their platforms: (i) advertisers benefit from better targeted advertising business possibilities; and (ii) users benefit from the higher quality of the functionalities offered.

Big data advantage also allows dominant platforms to closely oversight (or nowcast[406]) not only consumers' behavior and markets' trends, but also the development of rivals' business model and nascent threats. No wonder why almost every (realistic) start-up's dream is to be acquired by, rather than become the next big data titan (The Economist, September 2016).

Regardless of being considered, the "new currency of the internet" (Vestager, 2016), the oil of the XXI century (The Economist, May 2017), the important antitrust factor is that big data is commercially valuable – as showed by the value of their billionaire acquisitions[407] –, a driver of change, a competitive advantage for incumbents, and entry barrier for entrants (Graef, 2015). Depending on other characteristics of the data-driven market (e.g., market foreclosure, replicability, double marginalization problem, etc.), the essential facility doctrine may also apply[408].

2.3 Entry barriers & data-driven indirect network effects

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[406] Nowcasting is defined as the prediction of the present, the very near future and the very recent past in economics, https://en.wikipedia.org/wiki/Nowcasting_(economics).

[407] Only *Facebook/WhatsApp* and *Microsoft/LinkedIn* transactions amount for more than $48 billions.

[408] In the EU, the legal test and threshold for treating an input as an essential facility is significantly high, see the ECJ in *IMS Health* (case C- 418/01, para. 34-52) and *Bronner (case,* C-7/97, para.44-45). The US case law is even more averse to applying the doctrine. From an economic point of view, the author believes that a dynamic framework may be more suitable to address data issues than the essential facility doctrine.

With respect to entry barriers, the challenge pose by data-driven markets is that on top of the traditional network effects[409], there are the effects derived from scale[410] (i.e., learning-by-doing) and scope[411] (i.e., multiple data aspects of one user), and what some author have called spill-over or "data-driven indirect network effect" (Prüfer and Schottmüller, 2017), which have widen the gap between incumbent and entrants relevance of service. Indeed, the existence of an indirect network effect that crosses customer groups is what characterizes a business as multi-sided[412] (Graef, 2015, p. 476).

Prüfer and Schottmüller (2017) propose an innovative dynamic model of R&D competition to show that, due to indirect network effects, data-driven markets become stably monopolized ("tip") under very mild conditions[413]. The model's fundamental mechanism is to treat demand side-generated user preferences or characteristics as an input into the supply side-run innovation process. Thus, user information is an input into a firm's efforts to improve its perceived product quality and therefore reduces firm's cost of innovation. In the case of search engines, e.g., users' clicking behavior is the driver for indirect network effects.

As explained by the authors, a key feature of the "datafication" process is the growing importance of the indirect network effect, which combine the machine-generated data about user information, as a by-product of using goods and services that are connected to the internet, with a reduction in the marginal cost of innovation on the supply side, s.t. the marginal cost of innovating c(x, D_i), is decreasing in demand: $c_{x,D_i} < 0$[414].

As concluded by the authors, such combination cannot be easily copied by rivals or overcome by a disruptive innovator. Thus, data-driven markets do seem to pose higher barriers to entry resulting from the indirect network effects. Indeed, as observed by Stucke and Grunes

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[409] A network effect is either direct when the consumers' utility increases as the number of consumers grows, or indirect when the increasing number of consumers of a good leads to more complementary products or services that raises the value of the network (Katz and Shapiro, 1985). In the case of search engine services, the indirect network externality lies on the fact that the search results increase in relevance the more search data become available to the search engine (Argenton & Prüfer, 2012).

[410] Economies of scale arise when the incremental costs of creating additional units decline as the scale of production increases (Shapiro and Varian, 1999). In data-driven markets, users and advertisers expect to gain more value and are attracted to platforms with the largest group of customers.

[411] As suggested by Stucke and Grunes (2017), entry barriers are originated from four network effects: (i) classic network effects; (ii) network effects arising from the scale of data; (iii) network effects from the scope of data; and (iv) how network effects on one side of a platform can spill over to the other side.

[412] I agree with Prüfer and Schottmüller (2017) who does not define search engines and social networks as two-sided, but as *semi*-two-sided, as a higher number of advertisers do not necessarily benefit users.

[413] The authors adopt a model where duopolists repeatedly choose their innovation investments to compute the subgame-perfect Nash equilibria with a finite time horizon.

[414] According with the model, the firms have to incur in the following investment cost to increase its quality by x unit: c(x,Di) = $\gamma x^2/2 + \alpha x[1-Di(\Delta)]$, where γ is a parameter that measures the difficulty to innovate, α is a parameter that measures data-driven indirect network effects, Di is the demand in T-1, and Δ is the quality difference between the 2 firms.

(2017), if barriers to entry were low, Google wouldn't have intentionally degraded quality to favor its vertical service, and Microsoft wouldn't have spent over $4.5 billion to develop the algorithm and capacity to operate Bing – without virtually any success.

2.4 Market tipping & innovation

Prüfer and Schottmüller (2017) show that there is a strong first-mover advantage in data-driven markets, which tip under very mild conditions. In the game proposed by the authors, it means that when quality difference is sufficiently large, firms do not value future too much (δ is sufficiently low), and innovating is not so expensive, eventually, one firm will dominate the market by having full demand in every second period.

An alarming feature of a tipped market is that "there are very little incentives for both the dominant firm and the ousted firm to further invest in innovation" Prüfer and Schottmüller (2017, p. 2). This is because, by backward induction, the smaller firm will choose not to invest in innovation since it knows that the dominant firm will be able to match any investment at a lower marginal cost. Knowing this, the dominant's best response is also not to invest. Thus, market tipping cannot only raise barriers to entry, but it can also harm consumers due to the resulting underprovision of innovation.

When a market favors a "winner takes all outcome where monopoly is the nearly inevitable outcome of market success" (OECD, 2014, p. 60), competition authorities should have more reasons to be concerned about mergers that can tip the market, either in the service or product market where the acquirer already enjoys a large share, either in connected markets in which the acquirer can leverage its position, using information gained in his market of origin to tip a second or multiple markets (domino effect) (Prüfer and Schottmüller, 2017), as detailed in Section 4 below.

Alternatives to guarantee market contestability in data-driven markets include fostering consumers' data ownership and portability initiatives[415]. Also, data sharing of anonymized user information could allow competitors to overcome the incumbent's data advantage (The

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[415] In the EU, beginning in May 2018, the Regulation 2016/679 will impose an obligation on firms to enable individuals to take their personal data with them when they quit using an online service.

Economist, March[416] and May[417], 2017), while eliminating the mechanism causing data-driven markets to tip[418-419].

In sum, data can become an insuperable competitive advantage when: (i) acquirer's dominant position has been stable for a significant period; (ii) data is not easily replicable and the incumbent relies on exclusivity and IP rights; (iii) data-driven indirect network effects are strong; and (iv) the mergers can help the product market or a correlated market to tip.

3. Non-price dimension of competition: does privacy matter?

A survey published by International Data Corporation in 2017 found that "*a whopping of 84% of U.S. consumers expressed concern regarding the security of their personally identifiable information and 70% told IDC that their concern is greater today than just a few years ago*"[420]. In response to the scaling concern about privacy protection, privacy-conscious search engines such as DuckDuckGo and Qwant have emerged offering a differentiated product. As sharing private information with data-driven platforms is increasingly being perceived by consumers as a "cost", it is questionable whether the services offered by search engines and social networks can be considered cost free (OECD, 2016). In fact, data-driven mergers may diminish the incentives of the merging parties to compete on quality dimensions such as privacy protection, and, therefore, substantially hinder competition.

However, privacy concerns are far from being incorporated in competition analysis, with the notorious exception of Bundeskartellamt's investigation on Facebook's alleged abuse of privacy terms[421], and the Italian Competition Authority investigation on WhatsApp's Term of Use[422]. In the merger realm, both the EC and the FTC have cleared the Google/DoubleClick

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[416] In the EU, beginning in January 2018, the Second Payment Service Directive (PSD2) will compel banks to share customer-account information with licensed financial-services providers, under the consent of the account-holder.

[417] Ben Thompson, suggested that dominant social networks should be required to allow access to their social graphs, and highlighted that Instagram got off the ground by having new users import the list of their followers from Twitter.

[418] If, e.g., Facebook does not have exclusive rights of user information, competitors face the same cost function, and there is no cost advantage in producing quality. See Prüfer and Schottmüller (2017).

[419] Effects on total welfare are mixed because if there is no tipping, investments costs are duplicated. However, if data-driven indirect network effects are sufficiently high, data sharing obligations can increase total welfare. See Prüfer and Schottmüller (2017).

[420] IDC Press Release, January 24, 2017, http://www.idc.com/getdoc.jsp?containerId=prUS42253017.

[421] The Bundeskartellamt framed Facebook's Terms of Service on the use of consumer data as an abused of its dominant position in the market for social networks. See Bundeskartellamt's Press Release on March 2, 2016, http://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2016/02_03_2016_Facebook.htm

[422] On May 11th, 2017, the ICA closed its two investigations initiated in 2016 and fined WhatsApp for €3 million for having forced its users to share personal data with Facebook. The ICA concluded that WhatsApp *de facto* forced its users to share their personal data with Facebook, by inducing them to believe that they would continue

merger without accounting for the privacy aspects, with the exception of a dissenting statement from former FTC Commissioner Pamela Jones Harbour where she considered privacy concerns as 'cognizable'[423]. The EC in Facebook/WhatsApp dismissed privacy concerns as outside the scope of EU competition law and the ECJ *Asnef-Equifax*[424] found that privacy concerns are not, "as such", a matter for competition law.

To the extent that privacy constitutes a dimension of competition affecting economic efficiency and long run consumer welfare, competition law enforcement should step in. Having observed that privacy concerns have remained as a neglected matter in merger control, this report analyzes privacy from a quality competition dimension, investigates the competition concerns, and the importance of incorporating them into merger analysis.

3.1 Privacy as a dimension of quality competition

Quality is considered to be the key non-price competition parameter and the driver of innovation and dynamic efficiency (Gal and Rubinfeld, 2016). The European Court of Justice has long ago confirmed quality as another competition parameter[425]. As recognized by OECD (2013), lower quality can be just as detrimental to consumer welfare as higher prices. As recognized by the EC, when services are offered for no monetary fees, "*consumers pay more attention to other features*" and therefore quality constitutes "*a significant parameter of competition*"[426]. In *Microsoft/Linkedln* the EC acknowledged the relevance of privacy in the competitive assessment[427].

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to use the service only if they grant their full consent[422]. See ICA's press release on Press Release, http://www.agcm.it/en/newsroom/press-releases/2380-whatsapp-fined-for-3-million-euro-for-having-forced-its-users-to-share-their-personal-data-with-facebook.html

[423] "*[W]ithout imposing any conditions on the merger, neither the competition nor the privacy interests of consumers will have been adequately addressed*". See Pamela Jones Harbour, Dissenting Statement, In the Matter of Google/DoubleClick, FTC File No. 071-0170 (2007).

[424] Case C-238/05, ECLI:EU:C:2006:734, *Asnef-Equifax v. Ausbanc*, para 63.

[425] "*Competition on the merits may, by definition, lead to the departure from the market or the marginalization of competitors that are less efficient and so less attractive to consumers from the point of view of, among other things, price, choice, quality or innovation*". Judgment of the ECJ of March 27, 2010 in Case C-209/10 *Post Danmark A/S v. Konkurrencerådet*, para 22.

[426] Case M COMP/M.6281, *Microsoft/Skype*, Decision on 07.10.2011, para 81.

[427] "*Privacy (...) can be taken into account in the competition assessment to the extent that consumers see it as a significant factor of quality, and the merging parties compete with each other on this factor. In this instance, the Commission concluded that data privacy was an important parameter of competition (...)* ". Press Release of December 6, 2016, http://europa.eu/rapid/press-release_IP-16-4284_en.htm.

However, OECD (2013) identifies the question of quality effects as one of the most troublesome issue in merger control context, as it is "subjective" and hard to measure[428]. E Even if competition authorities account for quality competition, the scope of such analysis remains limited to its link with the price or competition in the market (Evans, 2011)[429]. Hence, the traditional analysis and economic tools are not likely to capture the anticompetitive effects brought by mergers between firms differentiated by privacy protection levels.

3.2 The economics of privacy

As quality and privacy competition has a common interpretation, economics of privacy sheds lights to additional themes and challenges associated with the competition analysis of privacy.

First of all, there is information asymmetry between the users and the service providers. When subscribing to online platforms, consumers are rarely aware of the type of data that might be collected form them (behavioral data, IP and location tracking data, business transaction, etc.) (OECD, 2106). This asymmetry enables the platform to invest less on privacy and increase its expected profits to the expense of service quality. Even if there are data protection standards and policies, the asymmetry of information does not change since it is costly for the user to read and understand the lengthy and complex terms and conditions[430].

This situation leads to a dysfunctional equilibrium characterized by Farrell (2012) as "*few consumers devote attention to disclosures, disclosures are vague, noncommittal, or even if explicit, mostly ignored; and the privacy policies chosen are inefficiently non-protective*"[431]. In such equilibrium, firm will be only interested in the privacy policy that gives more follow-on revenues, without considering what the consumers would prefer.

Secondly, not just naive users but also sophisticated consumers might not be able to switch to another service provider, either because they lack bargaining power or a credible

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[428] OECD Report (2013) expresses the difficulty relating to introducing quality considerations into competitive assessment: "*First, quality is a subjective concept and therefore much harder to define and measure than prices. In addition, microeconomic theory offers little help in predicting how changes in the level of competition in a market will affect quality and it is usually up to empirical analysis to determine how quality will change in response to varying degrees of competition in the context of particular markets*"

[429] A similar observation is also made by Ezrachi, A. and Stucke, M. E. (2015). Furthermore, a delegate's statement of "*the existing SSNIP test already incorporates a quality assessment, because customers will take into account the quality attributes of potential substitutes when deciding whether to switch in response to a price rise*" included in the OECD (2013) Report illustrates the tendency to link quality with price.

[430] Stucke and Grunes (2016) estimates the opportunity cost involved in reading privacy policies and general terms and condition at around 10 days a year.

[431] Importantly, the author also expresses that a small firm cannot break the equilibrium by adopting more protective policies as its demand would not shift as much to worth sacrificing.

outside option[432]. In fact, the results of the survey conducted Pew Research Center indicates that "91% of the adults 'agree' or 'strongly agree' that consumers have lost control over how personal information is collected and used by companies. By extension, the fact that the online platforms' services are presented as "free" leads consumers to disregard or at least misperceive the real cost of sharing their data. This has been also highlighted by the EC Commissioner Margrethe Vestager as "(*v)ery few people realize that, if you tick the box, your information can be exchanged with others (...) You give away something that was valuable. I think that point is underestimated as a factor as to how competition works*"[433]. In particular, the user immediately benefits the "zero-price" service yet remains uninformed regarding the short or long-term consequences of the disclosing its private data (OECD, 2016).

For instance, the economics literature suggests that effects of targeting are not necessarily always positive for consumers since they might be offered products inferior to the ones they would have found otherwise (Acquisti et al., 2016). Evans (2011) observes that zero is just another number that raises the red flag that conventional analysis do not apply for product in question and a proper antitrust analysis should consider the free product together with its companion moneymaking product.

When merger analysis involves a free product in multi-sided market, is widely known that the analysis needs to account for both sides of the platform since any change in market conditions for customers of one product affects the customers of the other product (Evans, 2011). However, as well observed by the *Autoritat Catalana de la Competència* (2016, p. 8), if there is a tradeoff between loss of privacy on the one side, and a more personalized service on the other side, the final decision should be given by the consumer.

Thirdly, when it comes to privacy, the typical assumption that consumers could detect the degradation in quality and would want to switch to rival products or services is highly unlikely to hold true (Ezrachi and Stucke, 2015). Therefore, the competition authorities should aim at incorporating the post-merger effects on parameters such as privacy into the balancing equation, albeit it may remain solely on qualitative evidences[434]. The challenge regarding

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[432] OECD Report (2016), para 94 refers to Hoofnagle and Whittington's (2014) proposal of granting ownership rights for consumers over their in order increase their bargaining power to negotiate the conditions under which data is traded and even to receive a monetary compensation. On the other hand, Acquisti et al. (2016, p. 453), argues that while the assignment of property rights is generally welfare enhancing, granting consumers the right to sell their personal data may actually undermine consumer surplus.

[433] Mlex interview with Margrethe Vestager, 22 January 2015.

[434] The OECD Report (2013, p. 161) on the difficulties of obtaining sufficient data to conduct quantitative analysis of quality aspects: "*This is due, in large part, to the multidimensional and subjective nature of product quality itself. Accordingly, DG Competition tends to rely more heavily on qualitative evidence of quality, including*

assessing the qualitative factors could be overcome considerably through cooperating with the data protection authorities' experts on the review of the case.

3.3 Quantitative analysis of effects on quality

Lastly, there are some promising steps taken towards quantifying effects on quality dimension as well. OECD (2013) presented SSNDQ test to measure the effect of a 'small but significant non-transitory decrease in quality' within market definition context[435]. The idea behind this test is similarly to the SNNIP (small but significant, non-transitory increase in price) test, and it allows for discovering if an existing supplier were to degrade quality a certain extent[436], holding other conditions unchanged, whether substitution to other products/services occurs. Hence, despite quantifying quality is a more challenging exercise than price, consumers' conduct may still provide rough indications about their preferences, when quality changes[437].

Although SNNDQ test found some positive reactions and was even applied by few authorities, a disagreement regarding its applicability or necessity was evident. In response to these skepticisms, (Waehner, 2016) introduced a framework suggesting that concerns stemming from "free service" characteristic do not need to hamper the quantification of non-price effects of a merger. Analogous to the upward pricing pressure ("UPP") formula, Waehner (2016) derived the downward quality pressure ("DQP") associated with a merger by quantifying the effects on quality but without quantifying quality or privacy[438].

The DQP formula assumes that through merger, a merged entity can internalize some of the lost profits by recapturing the users that would have otherwise switched to a competitor in response to lower privacy protection and hence, profitably and unilaterally degrade privacy[439]. Accordingly, when the price is constrained, a merger between two online advertising

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evidence gathered during sector investigations, customer and competitor surveys and internal documents of the firm(s) under investigation".

[435] This test, while sometimes applied in industries where quality measures are well-accepted and quantifiable (e.g., health sector), is used sparingly in other industries, where appropriate measures of quality have still to be developed (OECD, 2013).

[436] Hartman et al. (1993, p. 340) argue that SSNDQ test would lead to more accurate results in markets that are subject to rapid technological development. The authors also suggested a 25% decrease in a major performance (quality) compared to the 5-10 percent increase in SSNIP test.

[437] Gal and Rubinfeld (2016), refers to SSNIC test suggested by Newman where consumers pays for the free good in terms of another currency such as attention or information, such costs (e.g. privacy costs) can be quantified in terms of changes in cost.

[438] Waehrer (2016, p. 20-21) asserts that it is possible to calculate a critical level of incremental cost efficiencies from a merger such that efficiencies below that level would create downward pressure on quality. He also argues that premerger margins are the same inputs for both UPP and DQP and diversion rations associated with price effects need not be that different from diversion ratios associated with SSDQ.

[439] Just as with price effect, the value of the recaptured sales will be the quantity of diverted users times the per unit profit margin on those users.

supported firms may lead to reduction in consumer welfare if certain conditions are satisfied[440]. Stucke and Grunes (2016, p. 268) welcomed this new tool by stating that "*the elegance of the model is that it takes efficiencies into account, does not require the actual measurement of privacy (or quality more broadly) and has unambiguous results*". It remains to be seen whether competition authorities would use these modified tools in their assessment to deal with challenges associated with new dimensions of competition.

All in all, when it comes to mergers in two-sided online markets, focusing only on the price effects and/or monetized side of the market is prone to reach misleading conclusions. In order to assure well-founded decisions, the competition authorities should directly account for reduction in privacy on the consumer side through balancing the potential pro-competitive effects and the degradation in privacy protection by a small, but significant, non-transitory degree. The net effect of the merger on the consumer welfare would depend on how much the consumers value one side over the other. Refraining form accounting for any post-merger privacy harm may be one of the major drawbacks of the standing merger control enforcement.

4. Incorporating a more dynamic approach into merger analysis: what does it mean?

According with Ginsburg and Wright (2012, p. 1-3), dynamic competition models refer to the relationship between present competitive activities and the prediction of future market conditions such as "entry, investment, innovation, price, output, and quality"[441]. As defined by Sidak and Teece (2009), an analysis that favors dynamic competition over static competition would place less weight on market share and concentration and more weight on assessing potential competition[442] and enterprise-level capabilities[443]. Dynamic analysis matters the most when markets are in turmoil, experiencing significant technological change[444].

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440 Waehrer (2016) bases its model on following assumptions; (i) quality competition, in terms of privacy protection, (ii) services are offered to consumers in two-sided online markets, (iii) revenue is generated from advertising; and (iv) merger reduces the incentive to make costly quality improvements that would make the service more attractive to the user.

[441] According with the authors, the term "dynamic analysis" has been used in at least two different ways: (i) to incorporating the creation of new products and business models into the static model of competition; and (ii) the relationship between present competitive activities and future market conditions.
[442] Sidak and Teece (2009) argue that competition authorities should take potential competitors and their capabilities more seriously, as new entrants almost always drive innovation in established industries.
[443] Id. According with the authors, as capabilities transcend products, they are defined as "upstream resources" and are a better proxy for the firm's competitive position than is its downstream market share" (p. 38). In a dynamic context, a firm will have a kaleidoscope of products, yet the underlying capabilities are likely to be more stable (p. 39).
[444] Favoring dynamic versus static competition Schumpeter (1942) observed: "*competition from the new commodity, the new technology, the new source of supply, the new type of organization— competition which*

Empirical analysis of mergers has been traditionally dominated by static microeconomic theory, holding fixed the set of incumbent firms and products in the market[445-446]. However, there are important reasons why merger analysis should further incorporate a dynamic approach. In the merger context, the static criterion to assess competition is the immediate price effects in a given market (as well as change in market shares), while a dynamic evaluation also considers the innovation process (Marshall and Parra, 2016), as well as post-merger changes in firms' incentives and behavior.

From a dynamic perspective, it should be recognized that a reduction in competition that increases R&D may harm consumers in the short-run, but may bring long-term consumer welfare in terms of new products (Marshall and Parra, 2016). Notwithstanding, it should also be recognized that, e.g., a merger that allows for near-term gains has to be weighted against eventual long-term losses. Thus, even if a transaction does not raise competitive concerns from a static perspective (i.e., price increase or higher concentration in the product market), it can harm consumer welfare in the long run.

As observed by Sidak and Teece (2009, p. 41): "[t]he question should be framed not in terms of whether product-market competition will be impaired, as that is too much of an immediate concern, but in terms of whether capabilities will be brought under unitary control, thereby possibly thwarting future variety in new product development". As recognized by the *Autoritat Catalana de la Competència* (2016), a dynamic perspective of competition it is desirable to assess to what extent the integration would boost the incumbent's data advantage, hinder rivals from access to viable alternatives, or allow for exclusionary practices, limiting innovation in the near future.

This sort of exercise is imperative in data-driven mergers for at least two reasons: (i) data can be considered as a market in itself; and (ii) a dominant position in one data-driven market can be used to gain a dominant position in a second market that is (initially) not data-driven (Prüfer and Schottmüller, 2017).

4.1 Forward-looking approach to market definition

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commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the output of existing firms, but at their foundations and their very lives."

. [445] According to OECD (2007, p. 22), static efficiencies are allocative and productive efficiencies which relate to a particular point in time, while dynamic efficiencies are processes that occur over time or multiple time periods and lead to lower costs, new products, or improved products, e.g., innovation and learning by doing. For more details on the meaning of static versus dynamic competition see Sidak and Teece (2009).

[446] Merger analysis incorporates predictive fact-finding in terms of the likelihood of a successful entry, and the effects on prices post merger. To a less extent, competition authorities also apply a forward-looking analysis of future effects of efficiencies and innovation. See Ginsburg and Wright (2012).

Except for Twitter, platforms like Amazon, Google, and Facebook do not currently trade data with third parties, which seems to be the reason why the EC has defined the markets for, e.g., targeted ads, search engines and social networks, but not for user data[447]. However, "by defining a wider market for data, competition authorities and courts will be able to take a form of potential competition into consideration whereby online platforms providers also compete in a market for data" (Graef, 2015, p. 492).

As noticed by Graef (2015), a dynamic approach to market definition would be useful to evaluate the competitive situation beyond the relevant market for the current services offered to users and advertisers, and to assess competitive situations in a potential market for data used for improving the services provided on online platforms [448].

This goes in line with the opinion of the US FTC Commissioner Pamela Harbour, who suggested defining "a putative relevant product market comprising data that may be useful to advertisers and publishers who wish to engage in behavioral targeting." In the Commissioner's view, this market definition would be more realistic[449].

4.2 Connected markets and the domino effect

Defining a *potential market for data needed to provide services for users and advertisers* would also be helpful to understand the incentives of data-driven platforms to leverage market power to an adjacent or "connected" market, and repeatedly in other markets ("domino effect"). As defined by Prüfer and Schottmüller (2017), connected markets are "situation where user information gained in market A is a valuable input to improve one's perceived product quality in market B". Moreover, "firm 1 will enter market B when it has become sufficiently dominant in market A"[450].

In the discussed model, entering and dominating a connected market will be possible when firm 1: (i) develops a service or product that makes good use of user information gained

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[447] For instance, see *Facebook/WhatsApp* (2014) and *Google/DoubleClick* (2008).

[448] For more details on the possibility of defining a "potential market for data needed to provide services to users and advertisers" see Graef (2015, p. 493).

[449] Dissenting Statement of Commissioner Pamela Jones Harbour, *Google/DoubleClick*, FTC File No. 071-0170, 20 Dec. 2007, p. 9, http://www.ftc.gov/sites/default/files/documents/ public_statements/statement-matter-google/doubleclick/071220harbour_0.pdf.

[450] "[W]e applied the model and exemplified the domino effect by showing that Google's strategy to invest in many apparently unrelated markets can be rationalized by our model: these markets are either already connected (by user information driving indirect network effects in each of them) or the firm is trying to identify business models where user information from existing markets can serve as a valuable input into traditional markets." (Prüfer and Schottmüller, 2017, p. 20-31).

in one's original market; and (ii) possess a lot of relevant user information in its home market (Prüfer and Schottmüller, 2017, p. 17). This theory largely explain Google's successful business model of acquiring and entering markets far from its core business (e.g., driverless cars, "smart home" appliances, and healthcare[451]), but that can all benefit from access to a common pool of user information.

After the antitrust dismantle of conglomerates in the 1980s, intervention in conglomerate markets has been exceptionally rare (OECD, 2007). But the rational that conglomerate mergers do not change the incentives of the merged firm to change its behavior (Bork, 1978) does not seem to hold in the context of data-driven markets: what may looks like a messy conglomerate on the surface, can have a lot more synergies underneath. Due to data-driven indirect network effects, a conglomerate merger can allow higher concentration in the potential market for user information and the possibility of tipping in correlated markets.

4.3 Do we need new tools?

We do not claim that competition authorities should always favor dynamic competition efficiencies over static competition[452], or that they must try to accurately predict technological evolution[453]. Competition authorities should not rely completely on the reasoning presented by the merging parties either. Which is certain is that by disregarding dynamic effects a competition authority may forego potential consumer benefits or harm from these effects (OECD 2007, p. 226), especially in markets that are rapidly evolving and in areas where confidence in predictive fact-finding is supported by sound economic theory and empirical evidence (Ginsburg and Wright, 2012).

As framed by Commissioner Margaret Vestager (2016), to tackle those issues, "we don't need a whole new competition rulebook for the big data world. (…) what we do need is to pay close attention to these markets and to take action when it's necessary".

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[451] See "Google transforms into new Alphabet tech conglomerate", Financial Times, by Richard Waters and Eric Platt, August 11, 2005, https://www.ft.com/content/9a291bf8-3fa2-11e5-b98b-87c7270955cf.

[452] According with Sidak and Teece (2009), dynamic competition can be viewed as Schumpeterian competition, while static competition can be viewed as neoclassical. In any case, economic theory does not allow us to draw a clear-cut causal relationship between structure, competition and innovation. While most authors conclude that competition is more likely to foster innovation (Arrow, 1962), others argue that, if the profit gap is increasing, mergers increase industry's incentive to innovate (Marshall and Parra, 2016).

. [453] As observed by OECD (2007, p.19), unfortunately, "dynamic efficiencies also tend to be extremely difficult to identify, substantiate, and measure, making their incorporation in merger analysis problematic. (…) They include the uncertainty inherent in innovative activity regarding its cost, timing, and likelihood and extent of commercial success, difficulties in measuring innovation itself, the problem of how to conceptually transform innovation into some measure of welfare, the challenge of comparing near-term price effects with long-term non-price effects such as quality improvements or new products, (…) and informational asymmetry between the merging parties and the enforcement agencies."

Despite the institutional difficulties and personal limitations, competition authorities can overcome the challenges of dynamic analysis by: (i) compelling customer, suppliers, and rivals to identify potential competitors and possible technological developments; (ii) conducting industry-specific studies on innovation; (iii) hiring industry experts to become informed about unfolding innovation; and (iv) conduct consumer surveys to determine what kind of product development consumers would (not) value. Those measures can help authorities to better construct likely hypothetical scenarios about how a proposed data-driven merger can change the future market conditions.

More specifically, in **Section 5** the merger between Facebook and WhatsApp is revisited as an exercise to test what could have been done differently if future market conditions would have been taken into account.

5. Could a dynamic analysis have changed the outcome of Facebook/WhatsApp?

As reported by OECD (2016), with WhatsApp owning the leading messaging platform and Facebook offering the most widely used social network, the merger between the two companies has been a focal point in the debate about big data, competition and privacy.
On October 3, 2014, two months after its notification, the EC cleared the merger between Facebook and WhatsApp. At that time, Facebook had 1.3 billion users, while WhatsApp had around 600 million users[454]. The EC assessed the impact of the transaction on three services: (i) consumer communications; (ii) social networking; and (iii) online (non-search) advertising. In sum, the EC concluded that the parties were distant competitors in markets (i) and (ii), and that consumers and advertisers would continue to have a wide choice of alternatives in, respectively, markets (i) and (iii) post-merger.

The transaction was approved even considering the possibility of automated user matching – which was denied at the time of the notification[455] –, as a large amount of internet user data valuable for advertising would continue to exist. However, in August 2016, WhatsApp announced that it would start disclosing the phone number and analytics data of its users to

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[454] According to para. 128 and FN 76 f the EC's Decision.

[455] At the time of the acquisition, Facebook said that it was not technically possible to match WhatsApp users' ID with Facebook accounts because most people did not load the phone number used to register on WhatsApp onto their Facebook profile. Subsequently, in August 2016, WhatsApp announced, among other updates on its terms of service and privacy policy, the possibility of linking WhatsApp user phone numbers with Facebook user identities. See, EC Press release on May 18, 2017, http://europa.eu/rapid/press-release_IP-17-1369_en.htm.

Facebook[456]. In May 18, 2017, EC fined Facebook €110 million for providing misleading information regarding the alleged technical impossibility of matching users of both platforms. Finally, in the EC's view, any privacy-related concerns flowing from the increased concentration of data within the control of Facebook as a result of the merger do not fall within the scope of the EU competition law rules but within the scope of the EU data protection rules[457].

We believe that the adoption of a more dynamic oriented approach could have included the following subjects in this merger analysis: (i) a forward-looking relevant market definition; (ii) the elimination of potential competition; (iii) connected markets and domino effect; and (iv) quality degradation in terms of lower privacy protection.

5.1 A dynamic market for data

Even without defining and analyzing a market for the provision of data, the EC concluded that post-merger, "*there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control*"[458]. The EC referred to data collection across the web in general, without differentiating between different types of advertising, considering Google, Apple, Amazon, eBay, Microsoft, AOL, Yahoo, Twitter, IAC, LinkedIn, Adobe and Yelp as market participants that collect user data alongside Facebook[459]. As saw in **Section 2.2.**, the first caveat is that not all those firms collect the kind of data that can compete with the granular, up-to-date user data collected by Facebook.

From a static perspective, were the market to be defined as "non-search advertising on social network", as initially ventilated by the EC Decision[460], it could be demonstrated that the data collected by the platforms mentioned above are not substitutable from the demand or producer side[461]. This is because, as seen in **Section 2.2.**, Facebook collects data on social

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[456] According to WhatsApp, data-sharing will allow Facebook to use a person's phone number to improve other Facebook-operated services, such as making new Facebook friend suggestions, or better-tailored advertising. See Isaac and Scott (August, 2016) and NYT (2016).

[457] See para. 164, p. 29, EC Decision.

[458] See para. 189, EC Decision.

[459] See para. 188-189, EC Decision.

[460] See para. 76 an 77, EC Decision: *(76) (...) search and non-search ads are not substitutable as they serve different purposes (for search ads, mainly generating direct user traffic to the merchant's website, while, for non-search ads, mainly building brand awareness) and, as a result, most advertisers would not be likely to switch from one type to another in the event of a 5-10% price increase. (77) (...) A number of respondents considered that other forms of non-search advertising are not as effective as advertising on social networking websites and notably on Facebook, due to Facebook's large and highly engaged audience and its ad targeting opportunities.*

[461] Twitter data seems like the only good substitute for Facebook data - although the inverse does not seem to hold. See the arguments made by John David Rich in *PeopleBrowsr v. Twitter* (2012) affirming that tweets are "*contemporaneous reports on users' experience that provide unique feedback regarding consumers' reactions to*

graph, interactions, and profile information, while Apple, Amazon and eBay collect data mainly on purchase behavior, and Google, Yahoo/Bing on search queries and clicked links. Data collected by search engines can be use to provide online search advertising but is hardly be used to provide social networking advertising.

From a dynamic perspective, if the EC had gone beyond the current services being offered by the merging parties, and realized that users' data, as an upstream resource, is a better thermometer of competitiveness than downstream market shares, a relevant market for data could have been defined.

Firstly, following the approach suggested in **Section 4.1.**, if we identify the market as "data needed to provide non-search advertising and relevant services in social network", Facebook/WhatsApp merger would render Facebook dominance even more indisputable for both sides of the platform. Unlike the EC, the author does not see how "Google+, LinkedIn, MySpace, Pinterest and InterNations"[462] could impose a competitive constraint to Facebook's near 2 billion users platform, as none of them have similar scale or network effects and, in the case of LinkedIn, it is a professional, and not a social network as Facebook. In this scenario, the merger analysis would likely conclude that Facebook is dominant in the market for advertising on social networks and, thus, integrating with WhatsApp's data could have enhanced Facebook's market power.

Secondly, it is worthy to note that even if the market was more widely defined as "data needed to provide non-search advertising", the merger would reinforce a duopoly and lead to weaker contestability as only Google could pose a competitive constraint in this market[463].

5.2 Elimination of potential competition

As pointed out by many critics[464], the reason why Facebook was paying nearly $22 billion to buy a firm with modest revenues[465] and less than 60 employees, lies in the fact that WhatsApp, by scanning millions address books, had built an alternative "social graph", the network of connections between friends, which is indeed Facebook's most valuable asset.

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product and brands" and that the possibility of respond and retweet "*provides unique insight about which members of communities are influential*).

[462] See para. 62, EC Decision.

[463] This report also disagrees with the EC Decision that "Yahoo!, MSN and local providers" would represent a "sufficient number of alternative" to compete against Facebook ad targeting opportunities and high return on investments. See para. 177, EC Decision.

[464] The Economist (May, 2017), EDPS Opinion 8/2016, among others.

[465] After transactions like Facebook/WhatsApp, authorities have incorporated an additional threshold based on the value of the transaction to the current turnover threshold. See OECD (2016, p. 20) and *Monopolkommission* (2015).

WhatsApp functionalities were becoming closer to offer a broader digital social experience, as provided by Facebook[466]. Therefore, Facebook was eliminating a nascent threat[467] in the social network services, and the merger would rend Facebook's dominant position in social network even less contestable in the future.

Also, in the market for online advertising services, the merger was excluding the possibility of WhatsApp to serve non-search ads on its platform as an independent competitor. As observed in the dissenting statement in the FTC approval of Google/DoubleClick, also in Facebook/WhatsApp merger with respect to non-search targeted ads, the indirect network effects may not have been taken into account and the barriers to entry raised by the merger would mean that the advertisers would not have any alternative but to resort to the merged entity[468].

5.3 Tipping a connected market

As the EC frames the Facebook/WhatsApp merger, there was no concentration problem in the market for target advertising as automated matching Facebook users' ID with WhatsApp users' ID was not technically possible, and even if merging data was possible, WhatsApp "limited" user information could not add much value to Facebook's data hoard[469].

First, WhatsApp's data (i.e., user name, picture, status message, phone number, agenda, etc.) could be used to improve Facebook relevance of service and future advertising purposes in the future. As data collected via mobile data analytics is more personal, geo-located, and can be cross-referenced with call behavior, it could help Facebook to improve some of its functionalities, like suggesting friends, as it is actually doing[470]. Merging data could also be relevant for launching new AI services in the future.

Secondly, from Facebook's perspective, more crucial than to improve its data was to start serving ads in other markets. As pointed out by Fiegerman (2017), before the transaction, Facebook was hitting its maximum capacity for how many ads it could serve in its social network platform (included Instagram). Likely, the merger would expand Facebook's presence

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[466] As argued by many third parties, allowing for video calls, content exchange, creation of big groups, desktop access, etc., it seems that WhatsApp was already a provider of social networking services and should have been considered as a competitors of Facebook. See para 144, EC Decision.
[467] The Economist (May, 2017), p. 9;
[468] Dissenting Statement of Commissioner Pamela Jones Harbour in *Google/DoubleClick*.
[469] See paras 71, 180-188, EC Decision.
[470] See http://www.nytimes.com/2016/08/26/technology/relaxing-privacy-vow-whatsapp-to-share-some-data-with-facebook.html?_r=1.

in the mobile target advertising, and allow it to serve ads not only in its own communication app (i.e., Messenger[471]), but also in WhatsApp's[472].

Thus, as suggested by the theory (Prüfer and Schottmüller, 2017, p. 16-17) provided in **Section 4.2.**, Facebook was looking for a connected market to develop a service or product (i.e., chatbots) that makes good use of user information gained in Facebook's original market. Thus, evidence and economic theory indicates that Facebook's main reason to acquire WhatsApp seems to leverage its granular user data already collected on Facebook in order to start serving targeted ads in WhatsApp, a connected market (initially) not data-driven. As saw in the theory, due to indirect network effects and the decreasing marginal cost of innovating, Facebook can cause the consumer communication app market to tip in favor of WhatsApp.

Thus, post-merger, services like Telegram would no longer be a relevant competitive constraint to WhatsApp[473], which will be able to use its collective data with Facebook to innovate much cheaper and capture full demand in the consumer communication apps market (**Section 2.4**.).

5.4 Privacy and quality degradation

Facebook/WhatsApp represented a merger between two consumer communication apps that offered consumers different levels of privacy protection. While WhatsApp kept messages encrypted, Facebook's Messenger extensively collected users' data for advertising activities. As noted by Das and Kramer (2013), *even when users delete a message, it continues to be stored on Facebook's servers*. This privacy differentiation precisely explained why many users signed up for WhatsApp instead of Messenger (NYT, 2016).

As the services offered different privacy policies, the EC considered that Facebook's Messenger and WhatsApp were not close competitors, and that consumers would continue to have a wide choice of alternative consumer communications apps after the transaction. Thus, the EC, as well as the FTC, cleared the merger without further assessment on the possibility of

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[471] Spring, Facebook's mobile shopping start-up, is an interface that allow users to begin a personal conversation with a "chatbot" that will show them a smattering of thing they may like. See Isaac (April, 2016).

[472] WhatsApp blog announced on August 25, 2016, that, although users phone number and encrypted messages stay private, it was changing its terms and privacy policy to allow it to "coordinate more with Facebook", and test new ways for its users to "communicate with businesses" in the months ahead. See https://blog.whatsapp.com/10000627/Looking-ahead-for-WhatsApp.

[473] This report also disagrees with the EC's point of view that LINE, WeChat, iMessage, Snapchat could represent a significative competitive constraint to WhatsApp 1 billion users platform, as they have much less users and user engagement, and Skype, Viber and Hangout are not mainly used for content and messages exchange, but for video calls.

future privacy degradation, under the condition that WhatsApp obtain users' consent before changing privacy policies.

Two years after the merger was approved, in contradiction to the information submitted to the EC by the merging parties, WhatsApp announced that it would start sharing users' information with Facebook. This report argues that a more forward-looking inquiry by the EC, as well as a more transparent conduct by the merging parties, could have avoided this tight spot for the authority and for consumers, even if the EC did not considered WhatsApp data relevant for Facebook activities.

Specifically, the parties were close competitors in the market for consumer communication apps, regardless of the level of privacy offered (Waehrer, 2016). Secondly, privacy was precisely the most differentiating factor of competition between those services. The purchase of WhatsApp's privacy-friendly model is likely to deprive consumers of meaningful privacy choices (OECD, 2016, p. 18), and preventing WhatsApp from breaking out a "dysfunctional equilibrium" created by Facebook (Stucke and Grunes, 2016). Thus, the EC should have scrutinized whether Facebook lessened competition by eliminating a possible maverick firm (i.e., WhatsApp) offering greater privacy protection.

Accordingly, a more dynamic approach would have urged the EC to analyze whether consumers would be harmed by the privacy degradation if Facebook match WhatsApp users data[474], even if there was no breach of privacy laws. In particular, the EC could have balanced the gain to the advertisers against the loss in quality to consumers (OECD, 2016, p. 16). Also, the EC could have analyze to what extent users would be able to detect quality degradation and switch to alternative apps offering privacy protection given the network effects present in the case, as consumers are in an even worse condition to assess the value of their data, and often have no option but to accept the terms imposed on them, as well as intrusive advertising and even behavioral discrimination (The Economist, September, 2016).

Notwithstanding its challenges, a "harder-to-measure but equally important" non-price parameters of competition such as privacy protection (Stucke and Grunes, 2016), could yield a more comprehensive analysis than the one offered by price centric tools. All in all, an analysis that considered the impact of privacy reduction on consumers' choice would likely prevent the

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[474]   For instance, the Electronic Privacy Information Center, in its comments to FTC states that "*it was clear that the practical consequence of the merger would be to reduce the privacy protections for consumers and expose individuals to enhanced tracking and profiling. The failure of the Federal Trade Commission to take this into account during merger review is one of the main reasons consumer privacy in the United States has diminished significantly over the last 15 years*" In re: Remedy Study "Assessment of the FTC's Prior Actions on Merger Review and Consumer Privacy" March 17, 2015, https://epic.org/privacy/internet/ftc/Merger-Remedy-3-17.pdf.

acquisition by a dominant platform of companies providing services with a greater extent of privacy protection (OECD, 2016, p. 19).

6. Conclusion

While big data may boost innovation and connectivity, it can also entrench market power and compromise privacy. This tradeoff can be better addressed by a deeper integration of dynamics effects into competition analysis. In this sense, competition authorities could evaluate the market for data itself, as well as better account for potential competition and future market conditions. As suggested with the re-evaluation of Facebook/WhatsApp, a more dynamic analysis, however challenging and imperfectly, is better equipped to account for data-driven mergers' effects on consumer welfare in the long-run (Sidak and Teece, 2009; and Buttarelli, 2016).

In particular, regarding the analysis of data-driven mergers, competition authorities could take into account that: (i) data can yield an unreplicable advantage and entrench market power, as information about users' last minute behavior is not easily or readily available; (ii) dominant platforms nowcast not only consumer's behavior, but also the development of rivals' business models, precluding nascent threats from a chance to displace incumbents; and (iii) data-driven indirect network effects can cause the product market or a correlated market to tip much more easily, hindering entry.

With respect to privacy-related concerns, competition authorities could recognize that: (i) privacy standards are a growing concern of consumers, a cognizable parameter of competition, and a differentiation factor for competition; (ii) where services are offered for free, consumers may feel forced to accept lower standards of quality (i.e., privacy); (iii) the lack of competition over privacy implies market failure (CMA, 2015), and; (iv) competition authorities should intervene when privacy is a relevant dimension of competition and consumers' choices are overall restrained.

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