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PODĚKOVÁNÍ

Na tomto místě bych ráda poděkovala doc. JUDr. Václavu Šmejkalovi, Ph.D., vedoucímu mé diplomové práce za vstřícný přístup, trpělivost, flexibilitu, cenné rady a konstruktivní připomínky při prvních návrzích a v celém průběhu psaní této práce.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Commission	European Commission
Court of Justice	Court of Justice of the European Union
EEA	European Economic Area
EU	European Union
EU Merger Regulation	Council Regulation No 139/2004 of 20 January 2004 on the control of concentrations between undertakings
GDPR	Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC
HHI	Herfindahl-Hirschman Index
Horizontal Merger Guidelines	Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings
Member State	A member state of European Union
Merger Guidelines	Horizontal and Non-Horizontal Merger Guidelines
Non-horizontal Merger Guidelines	Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings
OECD	The Organisation for Economic Co-operation and Development
SSNIP	Small but Significant and Non-Transitory Increase in Price Test
US	United States

1 INTRODUCTION

In 2002 Steven Spielberg's blockbuster Minority Report was released, in which the protagonist Anderton is constantly traced with cameras and biometric sensors to gather information not only about his location and physique but also about his emotions and state of mind. That way, digital street signs and billboards could overwhelm him with personalized advertisements designed specifically to fulfil his current needs. In 2002 this marketing method was considered a science fiction that could possibly be realised in 2054. Today, 16 years later, it is a part of our everyday lives. Companies today may not (yet) use any tracking devices, but they have developed something at least as effective, namely big data.

The amount of data in today's digital economy has been exploding. Some of the recent significant technological and commercial developments stimulated in the economy allowed companies mainly in online business, such as search engines or social networks, to base their business models on the collection and processing of information and data in ways, which were not possible before. Nowadays, the transfer of data has almost no boundaries. Within fractions of seconds, it is possible to send, copy, and process large data sets via the internet. Consumers themselves produce a tremendous amount of data each day – searching, communicating, browsing, shopping, sharing. As a result, information about individual consumers is nowadays more accessible than ever, but at the same time more commercially valuable. Companies utilize collected data to improve the quality of their products and services, develop brand new innovative product offerings, and monetize[1] their services effectively, subsequently leading to the provision of better services for lower prices or even for free.[2]

[1] "In online commerce, "monetization" refers to a provider's ability to generate revenue from the content, services, or products offered to users, which are often provided for free. Many, if not most, online providers (as well as many traditional, offline firms) monetize their services through the showing of advertisements to users and the targeted advertising." In: LERNER, A. V. *The Role of "Big Data" in Online Platform Competition.* 2014, p. 12. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2482780>

[2] LERNER, A. *Op. cit.*, p. 10-18; SOKOL, D. D., COMERFORD, R. *Antitrust and Regulating Big Data.* In: Cambridge Handbook of Antitrust, Intellectual Property and High Tech. Cambridge University Press, 2016, p.

Companies aware of the growing importance of data adopt business models that rely upon data and undertake data-driven strategies in order to gain competitive advantages.[3] One of the ways how to outperform competitors is through strategic mergers and acquisitions, the number of which has been rising in the last years. According to OECD, the number of data-related mergers rose from 55 in 2008 to 134 in 2012.[4] European Director-General for Competition, Johannes Laitenberger emphasized in this year's speech that significant companies in the digital economy such as Alphabet, Apple, Amazon, Facebook or Microsoft have alone realized over 400 acquisitions worth more than $130 billion over the last decade. As pointed out, it is therefore legitimate to wonder whether the competitive pressure of the new market players on the incumbents in the digital environment is strong enough.[5]

The Commission has intensively scrutinised and worked on the interaction of competition policy, personal data and big data from the merger control angle, as the Commission itself highlighted in the last year's Commission Staff Working Document accompanying the Report on Competition Policy 2016.[6] Current European Commissioner for Competition Margrethe Vestager has presented the key issues in her speeches focused on competition in the big data world. While acknowledging the benefits of digital economy and data sharing, Vestager raised several questions and concerns on how big data can conversely hurt competition. *"A company might even buy up a rival just to get hold of its data, even though it hasn't yet managed to turn that data into money. We are therefore exploring whether we need to start looking at mergers with valuable data involved, even though the company that*

1133-1135. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2834611>; COMP/M.7212. *Facebook/WhatsApp*. 2014, para. 47

[3] STUCKE, M. E., GRUNES, A. P. *No Mistake About It: The Important Role of Antitrust in the Era of Big Data.* 2015, p. 3. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2600051>

[4] EUROPEAN DATA PROTECTION SUPERVISOR. *Report of workshop on Privacy, Consumers, Competition and Big Data.* 2014, p. 1. Available at: <https://edps.europa.eu/sites/edp/files/publication/14-07-11_edps_report_workshop_big_data_en.pdf>

[5] LAITENBERGER, J. *Enforcing EU competition law in a time of change. "Is Disruptive Competition Disrupting Competition Enforcement?"* Brussels, 2018, p. 7-8. Available at: <http://ec.europa.eu/competition/speeches/text/sp2018_03_en.pdf>

[6] EUROPEAN COMMISSION. *Commission Staff Working Document. Report on Competition Policy 2016.* SWD(2017) 175 final. 2017, p. 4. Available at: <http://ec.europa.eu/competition/publications/annual_report/2016/part2_en.pdf>

owns it doesn't have a large turnover…" as pointed out by Margrethe Vestager.[7] The Commission together with the competition authorities in Europe are therefore beginning to intensively discuss the operation of merger control and analyse implications of a data-driven mergers on competition.[8] Furthermore, the Commission has been actively engaged in competition-related international fora, such as the Competition Committee of the OECD, which will be likewise considered in this thesis.[9]

Quoting former Vice President of the Commission responsible for Competition policy Joaquín Almunia, *"Competition enforcement must evolve at all times to stay relevant and fulfil its goals."*[10] Competition law and merger control need to reflect the present market development. The importance of data in the current economic environment cannot be underestimated. Data is becoming one of the most important assets in the digital economy, therefore it is necessary to evaluate its implications carefully when it comes to data-driven concentrations. Competition authorities need to develop tools to properly assess data-driven mergers and identify data-driven strategies that could likely yield procompetitive efficiencies or on the other hand, impede effective competition.[11]

This thesis firstly provides the introduction into the background and outlines the main characteristics of "big data" concept, whereby manifesting the growing significance of data used as an asset in the present digital economy. The subsequent chapter focuses on the competitive concerns possibly arising once the proposed transaction involves merging potentially valuable datasets. The research considers specific features of data and explores to what extent these characteristics are prone to amplify or, on the contrary, mitigate the

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[7] VESTAGER, M. *Big Data and Competition.* EDPS-BEUC Conference on Big Data, Brussels, 2016. Available at: <https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/big-data-and-competition_en>

[8] EUROPEAN COMMISSION. *Press release. Mergers: Commission seeks feedback on certain aspects of EU merger control.* Brussels, 2016. Available at: <https://europa.eu/rapid/press-release_IP-16-3337_en.pdf>

[9] EUROPEAN COMMISSION. *Op. cit.* 6, p. 36

[10] ALMUNIA, J. *Developments in EU Competition Policy.* Athens, 2014. Available at: <http://europa.eu/rapid/press-release_SPEECH-14-312_en.htm>

[11] STUCKE, M. E., GRUNES, A. P., *Big Data and Competition Policy.* Oxford University Press, 2016, p. 257-266

competitive concerns of data in the context of merger controls. The following chapters aim to provide the outline and clarification of the basic principles of data-related theories of harm first theoretically, and then applied in practise. The core analysis in the fifth chapter attempts to determine the principles, anomalies, consistency of decision-making, and the overall approach of the Commission towards unconventional data-driven merger cases. Each sub-chapter firstly introduces the parties and background of each case, followed by the critical assessment of identified theories of harm with reference to big data. The master thesis is completed with a conclusion that summarises the main findings and seeks to provide an answer to the research question formulated below.

The author is aware of the growing competition law, data protection law and consumer protection law overlaps. Nevertheless, the ultimate objective of competition policy is consumer welfare as constituted in, inter alia, the EU Merger Regulation[12] and the Merger Guidelines[13]. Adhering to the topic and classification of this master thesis, the author will not further analyse issues that might be considered to be on the intersection or beyond the scope of European competition law. Having said that, the author is further aware of the novelty, complexity and continuous development of big data in competition law topic, which provides for numerous other related questions and issues that the scope of the master thesis does not allow to comprehend exhaustively and in detail.

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[12] "It is possible that the efficiencies brought about by the concentration counteract the effects on competition, and in particular the potential harm to consumers, that it might otherwise have and that, as a consequence, the concentration would not significantly impede effective competition…" COUNCIL OF THE EUROPEAN UNION. *Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation)*. OJ L 24. 2004, Recital 29

[13] "Effective competition brings benefits to consumers, such as low prices, high quality products, a wide selection of goods and services, and innovation. Through its control of mergers, the Commission prevents mergers that would be likely to deprive customers of these benefits by significantly increasing the market power of firms." "The relevant benchmark in assessing efficiency claims is that consumers (105) will not be worse off as a result of the merger." EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings.* OJ C 31. 2004, para. 8, 79

Essentially similar statements can be found in: EUROPEAN COMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008.

1.1 RESEARCH QUESTION

The purpose of this thesis is to investigate how the current merger control deals with the ongoing concerns of big data in the context of data-driven concentrations. The objective is to analyse whether newly created datasets of merged entities could lead to the increased market power of the newly formed concentration or could have detrimental effects on other competitors on the market or the competition itself, eventually constituting a recognized theory of harm. Furthermore, the thesis analyses how particular characteristics of big data can, by contrast, mitigate its competitive concerns. The idea is to analyse and establish whether big data could, in general, be a competitive concern. The analysis is further accompanied by the overview and analysis of merger decisions adopted by the Commission in the last years, where the competitive implications of data were to some extent addressed. The development of how the Commission tackles the novel issues in the application of merger control rules to the digital sector is inferred.

This master thesis intends to at least theoretically conclude whether big data in its essence tend not to be a competitive concern in data-driven concentration within dynamic markets or, on the other hand, ought to lead to a data-related concentration being declared incompatible with a common market.

1.2 METHODOLOGY

The author uses mainly descriptive and analytical method to at least partly answer research questions by reviewing applicable laws, practises and decisions especially of EU Commission (de lege lata). The descriptive part is accompanied by the analysis and critical assessment of the law as it is.

The author examined different types of sources throughout the conducted research. The primary sources used are jurisprudence, mainly studies made by EU competition authorities, materials published by EU institutions, such as the Commission's Annual Reports and

Commission Staff Working Documents, speeches of notable European Commissioners, articles and analyses of Commission officials, supported by reports from organisations, books, academic articles and research papers concerning competition law in general or in connection with big data. The core source used for the analysis of the Commission's practises are merger decisions concluded by the Commission. Furthermore, the EU legislation, mainly the EU Merger Regulation and other EU soft law are to some extent analysed and used as supporting material sources.

2 DATA IN THE "DIGITAL ECONOMY"

2.1 BIG DATA

2.1.1 GENERAL

The term big data lacks a common single definition, neither has it been recognised as a legal term. For the past decade, it has been assigned several different and inconsistent meanings. In a broader sense, it is used to refer to large amounts of datasets that are complex, heterogeneous, and the size of which is beyond the ability of a conventional statistical software or a computational tool to work with.[14] Data might be provided voluntarily (for most commonly for "free" services on e-platforms or when using other forms of IT-based services), might be observed (user generated data by cookies, tracking web surfing, sensor data) or derived (from other data).[15] Here the question presents itself - what is the threshold when data becomes big data? Is it 100 gigabytes? Or is it 100 petabytes?

The general consent is that the size itself does not suffice to depict the essence of big data. The corresponding perspective of big data that goes beyond its size and characteristics was further articulated by Competition Commissioner Margrethe Vestager in her speech on "Data as Power" event, stating that *"… What matters isn't just the amount of data. It's whether you can really use it to drive your rivals out of the market."* Vestager formulated the Commission's opinion on big data saying that competition concerns arise not only when a company collects a lot of certain type of data, but rather when the data is unique, cannot be

[14] OECD. *Data-Driven Innovation for Growth and Well-Being: Interim Synthesis Report.* 2014, p. 11. Available at: <https://www.oecd.org/sti/inno/data-driven-innovation-interim-synthesis.pdf>

[15] Furthermore, also government data ("open data"), i.e. personal or non-personal data collected by public sector bodies. In: LUNDQVIST, B. *Big Data, Open Data, Privacy Regulations, Intellectual Property and Competition Law in an Internet of Things World - The Issue of Access.* 2017, p. 2. Available at: <https://ssrn.com/abstract=2891484>; KERBER, W. *Digital Markets, Data, and Privacy: Competition Law, Consumer Law, and Data Protection.* In: Gewerblicher Rechtsschutz und Urheberrecht. Internationaler Teil (GRUR Int). 2016, 639-647. Available at: <https://ssrn.com/abstract=2770479>

duplicated, and can be used to foreclose other competitors.[16] The Commission also contributed to the OECD session on big data in 2016, where Cyril Ritter, Directorate-General for Competition official, addressed the essential claims about the implications of data for competition law enforcement. On behalf of the Commission, Ritter similarly declared as one of the issues the fact that some online service providers collect large amounts of data to improve their products, and thus accumulate an insurmountable advantage over competitors. In this case, the Commission suggests treating data as any other input; but before any interventions, it is crucial to identify whether data is a key element for product success, whether data is replicable or available from other sources, and how quickly data becomes outdated.[17]

On the basis of the aforementioned, it can be inferred that the Commission's perspective of the source of data-related competitive concerns goes beyond the characteristics, size or amount of data. Nevertheless, a recognition of big data's fundamental attributes eventually formed a universally accepted definition of big data that to some extent describes its challenges. It has been settled that even though big data can have various definitions depending on the context it is placed in, the concept of big data can be generally captured by four V's definition: the volume of data, the velocity at which data is collected, the variety of information aggregated, and the value of data.[18] Sometimes it goes even beyond and adds fifth or even more V's to the characteristics, such as variability, veracity, validity or others.[19] For the purpose of this thesis, the author will further elaborate on four primary recognised V's of the big data's definition.

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[16] VESTAGER, M. *Making Data Work for Us.* Copenhagen, 2016. Available at: <https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/making-data-work-us_en>

[17] RITTER, C. *EU Competition Law, Personal Data, And Big Data.* OECD Discussion on "Big Data: Bringing competition policy to the digital era, Paris, 2016. Available at: <https://one.oecd.org/document/DAF/COMP/M(2016)2/ANN2/FINAL/en/pdf>

[18] OECD. *Op. cit.* 14, p. 11;
AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Competition Law and Data.* 2016, p. 4. Available at: <http://www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf>

[19] FIRICAN, G. *The 10 Vs of Big Data.* In: Transforming data with intelligence. 2017. Available at: <https://tdwi.org/articles/2017/02/08/10-vs-of-big-data.aspx>

2.1.2 VOLUME

The volume of data is the original attribute, on which the concept of big data was built on. It refers to the vast amounts of data generated in the digitalized world at every second to the point, where the size of data becomes a problem and is beyond the capability of conventional database software tools to capture, store, and analyse.[20] The remarkable expansion of data is driven by various factors. One of the reasons is that technological innovations have reduced the cost of creating, collecting, managing and storing data. It is, therefore, less problematic for companies to acquire and exploit information about their consumers.[21] Another contribution to the volume of data is that consumers themselves provide, actively or passively, more personal information due to the widespread popularity of e-commerce, social networks or smartphones.[22] Furthermore, we are currently experiencing the Internet of Things[23], where millions of devices are regularly connected to the Internet, acquiring even more information in various fields of healthcare, education, financial services, retail, government, transportation, at our homes, schools, work or anywhere else.

The amount of data collected is growing significantly and the forecasts predict it to be exponentially growing in the years ahead. Cisco released a report predicting that driven by the Internet of Things, the total amount of data created (and not necessarily stored) by any device will reach 847 zettabytes[24] per year by 2021, reaching an increase of nearly 288,5

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[20] OECD. *Op. cit.* 14, p. 11.
[21] OECD. Op. cit. 14, p. 8-10; OECD. *Supporting Investment in Knowledge Capital, Growth and Innovation*. In: OECD Publishing. 2013, p. 321. Available at: <http://dx.doi.org/10.1787/9789264193307-en>
[22] OECD. *Big Data: Bringing Competition Policy to the Digital Era.* 2016, p. 6. Available at: <https://one.oecd.org/document/DAF/COMP(2016)14/en/pdf>; STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 17-18.
[23] "IoT refers to an ecosystem in which applications and services are driven by data collected from devices that sense and interface with the physical world. In the Internet of Things, devices and objects have communication connectivity, either a direct connection to the internet or mediated through local or wide area networks." In: OECD. *The Internet of Things: Seizing the Benefits and Addressing the Challenges*. 2016, p. 9. Available at: <http://dx.doi.org/10.1787/5jlwvzz8td0n-en>
[24] One zettabyte equals 1,099,511,627,776 gigabytes. CSG Network Memory and Storage Converter. Available at: <http://www.csgnetwork.com/memconv.html>

percent from 2016 when the total amount of data created reached 218 zettabytes.[25] Hence the term "big data". As an illustration, the total amount of data stored on the Internet in 2004 was 1 petabyte.[26] The idea is that companies are collecting and leveraging large volumes of data in order to turn it into some form of business advantage and improve their end product's quality. However, with massive amounts of data comes a number of challenges, such as cost, scalability and performance related to its storage, access, and processing in a timely fashion.[27]

2.1.3 VELOCITY

The velocity is the dimension of big data that refers to the increasing speed at which data is being generated, accessed, processed and analysed and the pace, at which data moves from one point to the next.[28] The main challenge of most companies nowadays is to match the speed of processing with the speed of information generation and get real-time decision-making power to maximize benefits they want to extract. Otherwise, using even a few hours late information might have detrimental consequences for some businesses. Keeping up with the production rate of data and processing of data in real-time is a particular goal of big data analytics.[29]

Real-time big data processing is used in various areas, such as social networks, fraud detection or healthcare so that companies can react to changing patterns in the business in real-time. For instance, real-time processing in commerce can help optimize customer service

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[25] CISCO. *Cisco Global Cloud Index: Forecast and Methodology, 2016–2021 White Paper.* 2018, p. 1. Available at: <https://www.cisco.com/c/en/us/solutions/collateral/service-provider/global-cloud-index-gci/white-paper-c11-738085.html>

[26] One zettabyte equals 1,048,576 petabytes. CSG Network Memory and Storage Converter. Available at: <http://www.csgnetwork.com/memconv.html>

[27] ALTINTAS, I. *Characteristics of Big Data – Volume.* Available at: <https://www.coursera.org/learn/big-data-introduction/lecture/YoAYs/characteristics-of-big-data-volume>

[28] OECD. *Op. cit.* 14, p. 11

[29] ALTINTAS, I. *Characteristics of Big Data – Velocity.* Available at: <https://www.coursera.org/learn/big-data-introduction/lecture/IIsZJ/characteristics-of-big-data-velocity>

processes, update inventory and price, detect customer purchasing patterns, and provide greater customer satisfaction.[30]

2.1.4 VARIETY

The variety as the third dimension of big data refers to the increased diversity of data. Today, a much wider variety of data is being collected, stored and analysed to solve real-world problems. There are many different types of data we encounter every day (such as text data, image data, network data, geographic maps or social media apps), different sources generating data and different media delivering data. Through the fusion of different forms of data new information and facts can emerge. Based on newly generated data companies can better target individuals with behavioural advertising, track their preferences and in general improve profiles of their consumers.[31]

Data's heterogeneity is connected to its volume and value – more sources of data means more varieties of data, which means that it is tougher to derive value from the data because every different format and model needs to be processed in a different way.

2.1.5 VALUE

The fourth dimension of data refers to the worth of data extracted and is both a cause and a consequence of the increase in volume, velocity and variety.[32] Big data's value is derived from big analytics, which is defined as "technical means to extract insights, and the empowering tools to better understand, influence or control the data objects of these insights". The insights could, for example, be about individuals, organisations, natural phenomena or the society overall.[33] The technical means and empowering tools include

[30] OECD. *Op. cit.* 14, p. 31
[31] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 21-22
[32] OECD. *Op. cit.* 22, p. 6
[33] OECD. *Op. cit.* 14, p. 4, 31

algorithms that could access and analyse vast amounts of data and so-called machine-learning based on the capability of computers to teach themselves tasks by processing large datasets and increasingly resembling the human brain.[34]

By means of big analytics, big data's value is derived from the other three V's. The volume of data enables companies to extract correlations from large, unstructured datasets with simple algorithms (which is said to perform better than cleaner datasets with more sophisticated algorithms but based on less data). Furthermore, the ability to derive further information increases with the wider variety of data once they are fused and linked. That is to say, data fusion enables to infer personal information even from seemingly anonymous or non-personal data. Finally, the velocity of data consisting in (near to) real-time processing enables companies to promptly react to market changes and be the first to collect, analyse data and use gathered data, thus gaining first- or early-mover advantage.[35]

The value may be the most important V of big data since simply having access to large amounts of data is useless unless companies have the incentive and ability to turn them into value.

2.2 PERSONAL DATA

For the clarification and understanding of the relationship and difference between big data and personal data, a brief introduction into personal data needs to be included. Big data is more than personal data; it also includes accumulated and anonymous data. However, it is rare for data generated by user activity to be completely and irreversibly anonymised. Big data sets often include personal data, and in many cases, it is difficult to separate the personal data from non-personal data. The main idea behind big data is to reveal relationships within and amongst the information through processing and analytics. While many benefits arise

[34] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 23
[35] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 22-24

from these processing operations, once personal data are involved, there are implications for privacy and data protection.

Privacy and data protection in EU are going to reach a significant milestone in the year 2018. The Council of European Union together with the Commission established new EU data protection regime by adopting the General Data Protection Regulation[36], the primary rule for processing personal data in EU law, designed to harmonize data and privacy law across EU, empower and protect all EU citizens from privacy and data breaches in the data-driven world, and alter the way organizations across the region approach data privacy.[37]

GDPR defines personal data as "any information relating to an identified or identifiable natural person"[38], similarly as treated in the previously valid Directive[39]. The Regulation further defines the processing of such data as "any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means" and provides a non-exhaustive list of such operations.[40]

2.3 DATA AS AN ASSET

The digital economy is marked by billions of everyday online connections among individuals, businesses, devices, processes, not least data. It is not a new phenomenon that

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[36] EUROPEAN PARLIAMENT AND COUNCIL. *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation).* OJ L 119. 2016.

[37] See also EU GDPR Portal. Available at: <https://www.eugdpr.org/key-changes.html>

[38] GDPR. Article 4 (1) reads as follows: "… ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person".

[39] EUROPEAN PARLIAMENT AND COUNCIL. *Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data.* OJ L 281. 1995.

[40] GDPR. Article 4(2) reads as follows: "… collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction."

all sectors of today's digital economy recognize an exponential rise in the value of data and data analytics, and an enormous increase in computing power and data storage capacity. The use of big data for creative and innovative purposes, known as data-driven innovation[41], has however revolutionized the way to generate, process, share, and commercially exploit data.[42] Being able to harness big data can generate and raise important economic efficiencies for businesses that may, in turn, benefit consumers and society in general. Big data, therefore, represents a core economic asset with the potential to create a significant competitive advantage for companies.[43]

Big data can be used in many ways to create value across various sectors of the global economy that it has reached to this day. Competition Commissioner Margrethe Vestager recognized data as a valuable asset that *"... companies can use to understand their environment in a way they never could before"* back in January 2016 in her "Competition in a big data world" speech, and even identified data as *"a new currency"*.[44] Data can be a product, an input for some product or even commercially irrelevant.[45] Online platforms track user activity on their websites and collect demographical, behavioural, and other data from users in order to improve the quality of their services and to monetize them effectively through targeted advertising. Furthermore, the collection of user locational data has become common with the growth of smartphones, laptops and tablet devices that allows tracking its user's location at any time. Not only does the collection of data benefit online companies, it serves the similar purpose for offline companies as well. Brick and mortar businesses can observe customers' activity and behaviour, gather their data through, for instance, retailer loyalty cards, credit card payments or smartphone apps with the purpose to detect customer shopping patterns and traffic data.[46] Companies can thus generate a comprehensive profile,

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[41] See also OECD. *Op. cit.* 14, p. 4
[42] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 9
[43] OECD. *Op. cit.* 14, p. 10
[44] VESTAGER, M. *Op. cit.* 7
[45] SIVINSKI, G., OKULIAR, A., KJOLBYE, L. *Is big data a big deal? A competition law approach to big data.* In: European Competition Journal. 2017, p. 201. Available at: <https://doi.org/10.1080/17441056.2017.1362866>
[46] LERNER, A. V. *Op. cit.*, p. 8-9

based on which they can address the actual target audience with tailored ads and services, i.e. use behavioural targeting.[47] Other efficiencies derived from the use of big data include enhanced production processes, improved decision-making, and market trend forecasts.

Access to the collection of data can be used not only to benefit companies to gain efficiencies and improve their businesses but also to exploit customers in a negative way. Companies may apply targeted advertising to the most vulnerable customers or discriminate unprofitable ones with different prices, opportunities or conditions. Customers may also be unaware of how much more information they leave behind than they intend to. Furthermore, users emit digital exhaust, or trace data, that leaves a trail of information, such as geographical coordinates of a smartphone or IP address in a server log, the value of which is often unknown to the user. Through big analytics and amalgamation of such information trails, companies can discern and reveal more about individuals.[48]

On the other hand, it is not only companies that consider data as an asset. People themselves consider personal data their property and use it as a commodity. Consumers search for free products and services more often these days. Companies, therefore, market their goods as (seemingly) free instead of charging a discouraging fee. What actually happens is that consumers pay with their personal information for goods and services marketed as free; the phenomenon that was recognized both by Competition Commissioner Vestager, European Data Protection Supervisor Hustinx and Commission officials.[49]

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[47] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 10
[48] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 28
[49] VESTAGER, M. *Competition in A Big Data World.* Munich, 2016. Available at: <https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/competition-big-data-world_en>; EUROPEAN DATA PROTECTION SUPERVISOR. *Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy.* 2014, p. 10. Available at: <https://edps.europa.eu/sites/edp/files/publication/14-03-26_competitition_law_big_data_en.pdf>; OCELLO, E. et al. *What's Up with Merger Control in the Digital Sector? Lessons from the Facebook/WhatsApp EU merger case.* In: Competition Merger Brief No. 1/2015. 2015, p. 6. Available at: <http://ec.europa.eu/competition/publications/cmb/2015/cmb2015_001_en.pdf>

The incentive and the ability to collect, analyse and exploit data for business purposes have never been stronger. The idea of data being claimed to be *"the new oil of the internet and the new currency of the digital world"* was first formulated by former European Commissioner for Consumer Policy Meglena Kuneva back in 2009.[50] Three years later, at that time Vice President of the European Commission responsible for Competition Policy Joaquín Almunia emphasised that companies more and more relied on data to improve their businesses and it seemed like data was becoming their most valuable intangible asset.[51] As a result, the healthy competitive environment might become disturbed once the thin line between the sensible commercial use of personal data and the abuse of such information is crossed. Additionally, protection of personal data is freedom enshrined in Charter of Fundamental Rights of the European Union.[52] Nevertheless, transfer of personal data has no boundaries. Within fractions of seconds, it is possible to send, copy, and process large data sets of personal information via the internet. It is, therefore, necessary to protect individuals from unwarranted access and exploitation of their private personal information when the possibilities to do so are growing every day.

[50] KUNEVA, M. *Keynote Speech: Roundtable on Online Data Collection, Targeting and Profiling.* Brussels, 2009. Available at: <http://europa.eu/rapid/press-release_SPEECH-09-156_en.htm>

[51] ALMUNIA, J. *Competition and Personal Data Protection*. Brussels, 2012. Available at: <http://europa.eu/rapid/press-release_SPEECH-12-860_en.htm>

[52] THE EUROPEAN PARLIAMENT, THE COUNCIL AND THE COMMISSION. *Charter of Fundamental Rights of the European Union*. OJ C 326. 2012, Article 8

3 COMPETITIVE CONCERNS REGARDING DATA IN CONTEXT OF MERGERS

3.1 GENERAL

Data is unique in its own way and of relative importance depending on the context and the market. As data presents a valuable asset for many companies, the concerns arose that the concentration of data within the control of merging companies may lead to the risk of abuse and distortion of competition, as suggested by Joaquín Almunia, former Vice President of the Commission responsible for Competition Policy.[53] The possession of big data presents particular challenges to competition law enforcement, since it could in theory contribute to market power. However, as Competition Commissioner Margrethe Vestager suggested *"... we shouldn't take action just because a company holds a lot of data. After all, data doesn't automatically equal power."*[54] Competitive impact of data depends on many factors that competition authorities need to consider and evaluate on a case-by-case basis, depending on the data and depending on the market.

3.2 DATA AND MARKET POWER

As mentioned above, there are more ways how companies collect and use gathered data, as well as more potential impacts it might have. From the competition view, the ability of data collection to contribute to creating or maintaining companies' market power might be one of the most interesting ones.[55]

Generally, in economy the market power is defined as the ability to price above short-run marginal cost and, in the long run, above average total cost. Short-run marginal cost is the

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[53] ALMUNIA, J. *Op. cit.* 51
[54] VESTAGER, M. *Op. cit.* 49
[55] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. Op. cit., p. 25-26; LUNDQVIST, B. *Regulating Competition and Property in Digital Economy – The Interface Between Data, Privacy, Intellectual Property, Fairness and Competition Law*. 2017, p. 5. Available at: <https://ssrn.com/abstract=3103870>

increase in total costs of a company caused by increasing its output by one extra unit while average total cost is the average costs related to the production of one only unit.[56] As explained by Jones and Sufrin, there are two methods how to measure company's market power, "direct" and "indirect". The direct method is based on using econometric methods, in particular, the residual demand curve, i.e. the demand curve facing only one company (demand not met by other companies in the market). The indirect method estimates the market power using a structural approach that consists of several steps, the definition of a relevant market and the barriers to entry analysis being of crucial importance. Barriers to entry play a significant role when it comes to measuring company's market power by the indirect method since they allow the company to earn monopoly profits by preventing other competitors from entering the market.[57] Since EU competition authorities, together with the Commission and the European Court of Justice use the indirect method, this thesis will subsequently analyse determination of the relevant market and barriers to entry in the context of data-driven mergers, while examining a role of market shares and concentration level indications in dynamic markets.[58]

Even though many sectors and industries could be affected by collection and usage of huge amounts of data, the majority of such businesses are active in online services, such as social networking, search engines, or online retailing. Due to their economic characteristics, digital channels and devices used for market interactions and online businesses are often able to collect significantly more user data than brick and mortar companies nowadays. Therefore, the following analysis will focus primarily on companies active in online markets.

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[56] JONES, A., SUFRIN, B. *EU Competition Law. Texts, Cases and Materials.* Oxford University Press, 6th edition. 2016, p. 382

[57] JONES, A., SUFRIN, B. *Op. cit.,* p. 54-55

[58] The author is aware of the complexity and diversity of elements entailed in the Commission's merger assessment. Nevertheless, for the purpose of this thesis the author selected and further analysed only several Commission's assessment practises that the author considers to be the most relevant and the most inclined to affect the competitive appraisal of data-driven mergers.

3.2.1 RELEVANT MARKET

In the merger assessment, the Commission defines relevant product market in the terms of substitutability, or interchangeability. According to the Market Definition Notice published by the Commission, the relevant market depends on the determination of products or services in certain areas that are substitutes for one another.[59] When it comes to products or services that are new or subject to ongoing technological developments, such as in data-related digital economy, using traditional mechanisms to define relevant market may be more challenging or even inapplicable.[60]

3.2.1.1 DATA AS A TRADABLE ITEM

Under current EU competition policy, a correct market definition generally requires an existence of both supply and demand for the given substitutable product or service. As long as the data is not traded, a relevant market for data cannot be established. When it comes to data, companies active on social networks, search engines, or e-commerce platforms collecting a great amount of data are most commonly using data only as an input, as opposed to selling or trading data to third parties. Since data only forms an intermediary product and no demand and supply exists, the substitutability of data cannot be assessed and therefore no relevant product marked can be identified.[61] The approach is supported also by American practitioners claiming that only when data is actually sold to customers, providing it could, in theory, constitute a relevant market. By definition, if there are and will be no sales, there can be no competition.[62]

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[59] EUROPEAN COMMISSION. *Commission Notice on the definition of relevant market for the purposes of Community competition law*. OJ C 372. 1997, Art. 7.

[60] "For example, the SSNIP test – which is designed to assess to what extent products and services are currently substitutes to each other – is unlikely to capture the changes in substitutability brought by technological developments that may occur in the next two to three years (i.e. the time span relevant for the assessment of a merger). Also, the SSNIP test cannot as such be applied with respect to digital products or services that are offered for free to users." In: OCELLO, E. et al. *Op. cit.* 6, p. 3

[61] GRAEF, I. *Market Definition and Market Power in Data: The Case of Online Platforms.* In: World Competition 38, no. 4. 2015, p. 489-492. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2657732>

[62] TUCKER, D. S., WELLFORD, H. B. *Big Mistakes Regarding Big Data.* In: The Antitrust Source. 2014, p. 4. Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2549044>

This was illustrated in *Facebook/WhatsApp* merger decision, where the Commission explicitly stated that it has not investigated any possible market definition with respect to the provision of data or data analytics services since neither Facebook nor WhatsApp was active in such markets. Facebook did not sell any of the collected user data nor provided data analytics services to third parties as a stand-alone product separate from the advertising space itself. WhatsApp did neither sell any form of advertising, nor it stored or collected data about its users that would be valuable for advertising purposes.[63] Conversely, in case any of the parties had actually been active in the provision of data, the Commission might have further examined the relevant market definition potentially solely for big data.

3.2.1.2 DATA AS AN INPUT

Apart from defining a relevant market consisting of the big data itself, where such data is available for purchase, there is also another side of the same coin. Where data itself is not a tradable item, it may nevertheless play an important role in the determination of market. Companies develop new products and services based almost entirely on new ways of monetizing databases of user data and user profiles, most of the time far apart from the initial purposes data was originally collected for. In such cases, defining an additional, wider data-related market would enable the Commission and competition authorities to take into account another form of potential competition – particularly online platform providers competing in the market for data that can be utilized for enhancing the quality and relevance of their services.[64] Such data market definition would thus reflect the nature of online platforms, which do not profit from selling their services or technology to consumers, but rather rely on gaining benefits from valuable information collected from their users. As a result, the idea of defining a relevant product market comprising data that may be useful for companies emerged.[65]

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[63] COMP/M.7212. *Facebook/WhatsApp*. 2014, para. 70-72
[64] GRAEF, I. *Op. cit.,* p. 492
[65] BREUVART, C., CHASSAING, É., PERRAUT, A. *Big Data and Competition Law in The Digital Sector: Lessons from The European Commission's Merger Control Practice and Recent National Initiatives*. In: Concurrences Competition Law Review No. 3. 2016, p. 45. Available at:

The discussion was launched by former US Federal Trade Commissioner Pamela Jones Harbour, when she suggested a new type of product market definition for data, separate and apart from markets for the services driven by these data, more precisely *"a putative relevant product market comprising data that may be useful to advertisers and publishers who wish to engage in behavioural targeting."*[66] This approach to the market definition would reflect accordingly the distinction between data collection and data usage and the actual marketplace reality, where often online-based companies derive great value from user data, far beyond the original purposes for which it was initially collected.[67] Subsequently, Harbour proposed the idea in her speech in European Parliament stating that defining a market for user data may be unusual under traditional market definition principles, but it may better reflect how companies, their competitors, customers, and users interact in the real world.[68] In addition, European Data Protection Supervisor also suggested defining two separate markets, one for the collection of data and the other for the use of data as an input, either to supply other services or to sell the data for processing to third parties.[69]

On the other hand, there are some practitioners not in favour of this idea, claiming such market definition analysis around inputs like consumer data would become more complex, less accurate, and less predictable.[70] Nevertheless, when it comes to the Commission actually conducting merger reviews, there is no shortage for defining a market around data sold to

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<http://www.concurrences.com/en/review/issues/no-3-2016/articles/big-data-and-competition-law-in-the-digital-sector-lessons-from-the-european-80763>

[66] JONES HARBOUR, P. *Dissenting Statement of Commissioner Pamela Jones Harbour in The Matter of Google/DoubleClick*. In: F.T.C. File No. 071-0170. 2007, p. 9. Available at: <https://www.ftc.gov/sites/default/files/documents/public_statements/statement-matter-google/doubleclick/071220harbour_0.pdf>

[67] JONES HARBOUR, P., KOSLOV, T. I. *Section 2 In a Web 2.0 World: An Expanded Vision of Relevant Product Markets.* In: Antitrust Law Journal, vol. 76. 2010, p. 789-793. Available at: <http://www.nortonrosefulbright.com/files/us/images/publications/20100816Section2InWebWorld.pdf>

[68] JONES HARBOUR, P. *Competition & Privacy in Markets of Data.* In: Privacy Platform event, European Parliament. 2012. Available at: <http://www.nortonrosefulbright.com/files/us/images/publications/121127PJHarbourEUParliamentCompetitionPrivacy.pdf>

[69] EUROPEAN DATA PROTECTION SUPERVISOR. *Op. cit.* 42, p. 27

[70] TUCKER, D. S., WELLFORD, H. B. *Op. cit.,* p. 5

customers[71]; the Commission has however not yet established a relevant product market for data used solely as input so far.

3.2.2 MARKET SHARES

Market shares and concentration (also "HHI") levels provide useful first indications for identifying potentially problematic mergers. Both Horizontal and Non-Horizontal Merger Guidelines provide guidance on the competitive assessment conducted by the Commission and corresponding levels of market shares and concentration thresholds that are unlikely to raise competition concerns.[72] The extent to which these factors could contribute to the increase of market power depends, among other things, on the characteristics and the conditions on the market itself. In the judgment of the General Court in *Cisco and Messagenet*[73] case, in which Cisco challenged Microsoft's takeover of Skype, the General Court expressed its opinion regarding the role of market share and HHI levels in dynamic markets, specific particularly for online businesses and companies collecting and analysing big data. The General Court shared the same view with the Commission regarding large market shares in recent and fast-growing sectors characterised by frequent new market entries and short innovation cycles being potentially ephemeral. The General Court concluded that *"… In such a dynamic context, high market shares are not necessarily indicative of market power and, therefore, of lasting damage to competition which Regulation No 139/2004 seeks to prevent."*[74]

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[71] For instance, COMP/M.4726. *Thomson Corporation/ Reuters Group*. 2008; COMP/M.5529. *Oracle/ Sun Microsystems*. 2010; COMP/M.6921. *IBM Italia/UBIS*. 2013.

[72] EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 31. 2004, para. 14-21
EUROPEAN COMMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para. 23-27

[73] Judgment of the General Court of 11 December 2013, *Cisco Systems and Messagenet v Commission*. T-79/12. ECLI:EU:T:2013:635

[74] *Ibid.,* para. 69

The Commission adopted and relied on the General Court's statement in its *Facebook/WhatsApp* decision.[75] It emphasised the dynamic character of the consumer communications sector, where large market shares fluctuate very frequently, sometimes within weeks or months. The Commission explained such fluctuations by important factors including trendiness and coolness of apps perceived by groups of users that shape the competitive landscape.[76] Furthermore, emerging concerns about privacy protection or even temporary service outages might affect the size of market shares stemming from the popularity and frequency of apps usage by its users.[77] Portability of demand, i.e. so-called multi-homing, constituted another important factor considered by the Commission in data-related merger cases and will be further analysed in the following subsection.

Based on the analysis outlined by the General Court's judgment and the Commission's decision, the lower informative value of market shares in the dynamic environment of data-related markets may be derived primarily from the volatility and inconstancy of such markets. Due to recurrent fluctuations, the past market shares may not fundamentally truly represent the effective competitive force of companies present on the market at the time of the Commission's decision; consequently, there is a low degree of certainty that the Commission's prediction regarding the future market structure in the two- to three-year time period usually considered to assess the potential effects of a merger will be valid.[78] Similarly, OECD also questioned the appropriateness of market shares and concentration measures in specific kind of markets, such as for industries exhibiting rapid innovations where the markets are often unstable and change rapidly over time.[79]

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[75] COMP/M.7212. *Facebook/WhatsApp*. 2014, para. 99
[76] *Ibid.*, para. 89
[77] OCELLO, E. et al. *Op. cit.* 6, p. 4
[78] OCELLO, E. et al. *Op. cit.* 6, p. 4
[79] OECD. *Market Definition.* 2012, p. 11. Available at: <http://www.oecd.org/daf/competition/Marketdefinition2012.pdf>

3.2.3 BARRIERS TO ENTRY INDICATIVE OF MARKET POWER

3.2.3.1 GENERAL

A barrier to entry is something that prevents or hinders the emergence of a potential competitor which would otherwise constraint the incumbent company. The term "barriers to entry" is considered to include barriers to expansion that prevent or hinder an existing competitor from expanding output as well.[80] As the Commission established, a merger is unlikely to pose any significant anti-competitive risk in case entering a market for other competitors is sufficiently easy. On the other hand, in markets with significant entry barriers, it is likely for a company to sustain its market power. For entry to be considered a sufficient competitive constraint on the merging parties, it must be shown to be likely, timely, and sufficient to deter or defeat any potential anti-competitive effects of the merger.[81] Thus, the key issue in EU competition law is whether entry barriers are sufficiently low to reduce concerns about merger's anti-competitive effects.

According to Merger Guidelines, barriers to entry can take various forms. Taking into account only the traditional entry barriers, merging parties can argue that entry barriers, particularly in online industry, are generally low.[82] Innovative competitors rapidly entering the market and displacing established companies with much greater data resources than themselves can serve as supporting the argument of low entry barriers.[83] Furthermore, considering search engines as an illustration – they are free, easy to use, users can easily switch from one search engine to another, users are not locked-in by any data portability issues and no classic direct network effects have been identified so far. As a result, under these traditional factors, competition authorities might find no need to intervene as no entry barriers seem to arise. Therefore, competition authorities need to look beyond traditional

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[80] JONES, A., SUFRIN, B. *Op. cit.,* p. 79
[81] EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 31. 2004, para. 68
[82] *Ibid.*, para. 71;
EUROPEAN COMMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para 49
[83] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1136

entry factors into those arising particularly in data-driven markets, such as network effect, scale, and scope of data or spill-over effects, as analysed further in sections below. Stucke and Grunes claim that there is no empirical support for concluding that entry barriers across online markets are either consistently low or high.[84]

3.2.3.2 NETWORK EFFECTS

Competition authorities are generally familiar with direct and indirect network effects. The direct network effects arise when the value and usefulness of the product or service increases with the number of users. A classic example is a telephone. As more people use telephones, the more people one can call, the more useful it is to actually own the telephone. The indirect network effects mean that once the usage of a product or service increases, the value of complementary ones increases as well. For instance, the more people use Apple's operating system, the more will be invested in developing products compatible with this operating system, hence the popularity of the system will rise as well. Indirect network effects are, however, not necessarily symmetrical. As the advertisers might enjoy more users on the service, the reversed, that users value more advertisers and advertisement, might not be the case.[85]

When it comes to network effects particularly in data-related markets, the Commission has expressed concerns about even stronger affects these network effects may have on the high-tech markets. In *Google* case, the Commission observed that in online markets the network effects might lead to the dominant position of the company, which might consequently foreclose competitors and prevent other competitors from expanding their customer base.[86] Several competition officials have also highlighted the significant role the network effects play in digital services since they are essentially based on the interaction of the users through

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[84] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 158
[85] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 28
[86] EUROPEAN COMMISSION. *Press release. Commission Seeks Feedback on Commitments Offered by Google To Address Competition Concerns – Questions and Answers*. Brussels, 2013. Available at: <http://europa.eu/rapid/press-release_MEMO-13-383_en.htm>

a platform.[87] OECD, although acknowledging benefits generated by network effects in digital markets, recognized their competitive concerns in relation to the strength and viability of competition itself. Furthermore, OECD observed there is a high risk that digital markets significantly affected by network effects might reach a tipping point, at which monopolisation to the detriment of the competition might become almost inevitable.[88]

When it comes to network effects in already closed merger cases, the Commission observed in *Facebook/WhatsApp* case that no significant "traditional" entry barriers to enter the consumer communication app market were recognized.[89] However, the merger did raise classic direct network effects in two product markets, texting apps and social networking, whose impact on competition post-merger needed to be assessed. As the Commission pointed out, network effects in online markets, in particular, may lead to the ability of the merged entity to foreclose competitors and make more difficult for competing providers to expand their customer base.[90] Nevertheless, the Commission concluded that network effects do not constitute an ultimate barrier to competitor entry or expansion post-merger.[91] The *Facebook/WhatsApp* decision supported the approach adopted in the earlier *Microsoft/Skype* case in the Commission's decision[92] and the General Court's judgment[93]. Even so, European Commission officials emphasize that the mentioned decisions do not constitute a general rule and the Commission will carry out a case-by-case assessment of network effects in future merger cases.[94] OECD came to the similar conclusion in its Interim Synthesis Report.[95]

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[87] OCELLO, E. et al. *Op. cit.* 6, p. 4
[88] OECD. *Op. cit.* 10, p. 58; OECD. *The Digital Economy.* 2012, p. 141-144. Available at: <http://www.oecd.org/daf/competition/The-Digital-Economy-2012.pdf>
[89] COMP/M.7212. *Facebook/WhatsApp*. 2014, para. 117-140
[90] *Ibid.*, para. 130
[91] *Ibid.*, para. 135
[92] COMP/M.6281. *Microsoft/Skype.* 2011
[93] Judgment of the General Court of 11 December 2013, *Cisco Systems and Messagenet v Commission*. T-79/12. ECLI:EU:T:2013:635
[94] OCELLO, E. et al. *Op. cit.* 6, p. 5
[95] "Many data-driven services and platforms such as social networking sites are characterized by large network effects (demand side economies of scale) where the utility of the services increases over proportionately with the number of users. This reinforces the increasing returns to scale and scope on the supply side." In: OECD. *Op. cit.* 14, p. 29

3.2.3.3 SCALE OF DATA

A second effect emerging in data-driven markets arises from the scale of data. The more people who actively or passively provide data, the more the company can improve its product or services, which in turn will likely attract more users, and the positive feedback continues.[96] The implications of the scale of data for markets were recognized also by Competition Commissioner Margrethe Vestager, saying *"... Often what attracts users to a service isn't its price or any inherent quality, but how many other people use it. And sometimes data can be the most valuable asset a company owns."*[97] As an illustration, the more people use a search engine, the more likely it learns to accurately predict consumers' preferences, the more relevant and reliable the search results will be; thus, the search engine will ultimately attract more users. It is often described as "trial-and-error", or "learning-by-doing" process, meaning the likelihood that the search engine provides relevant results increases with more searches by users themselves.[98] So-called "click-and-query" data is considered to be a highly valuable input to deliver high quality search results.[99] What needs to be emphasized is that knowing customers' preferences resulting in the provision of better products or services is a trivial marketing rule. The Internet and information technologies introduced new quality into the business by making it possible to acquire, process and utilize data of enormous size, tremendously fast and in a long term – in a way never possible before. This makes current digital economy considerably novel in numerous courses compared to standard brick-and-mortar and industrial businesses.

The Commission recognized the scale of data as an important element of an effective competitor in its *Microsoft/Yahoo! Search* merger decision, stating that the newly merged entity could be able to provide greater relevance through greater scale.[100] According to the

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[96] OECD. *Op. cit.* 14, p. 27
[97] VESTAGER, M. *Refining the EU Merger Control System.* Brussels, 2016. Available at: <https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/refining-eu-merger-control-system_en>
[98] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 170
[99] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1134
[100] COMP/M.5727. *Microsoft/Yahoo! Search business.* 2010, para. 153, 225

Commission's analysis, the most important factors, based on which users choose a search engine, are the algorithmic search engines' quality and relevance. As a result, the merged entity would be allowed to run more test and experiments on the algorithm, thus eventually improving its relevance.[101] OECD shares the same opinion on this scale-based effect that can be output enhancing and recognizes the existence of positive feedback, stating that *"... the accumulation of data can lead to significant improvements of data-driven services which in turns can attract more users leading to even more data that can be collected."* These feedbacks might reinforce company's market position, and eventually lead to market dominance, or at least to market concentration.[102] The opinion that a relatively large scale of data collection may positively promote the competitiveness of companies active in online markets was similarly expressed by German and French competition authorities in their joint report.[103]

However, even though companies may perform better with an access to a larger scale of data post-merger, this claim is not indisputable. Timeliness of data is an important factor able to limit the competitive advantage of data-rich companies. The value of data is not consistent and may decrease rapidly in time. As a result, companies need new, updated data to ensure their results and predictions are precise and reliable; this being especially true for companies active in online industry and heavily relying on the timeliness of data, such as targeted advertising.[104] Thereby, companies that are able to update data very frequently and collect new data in a very short time have a lasting advantage over its competitors. In addition, in case of huge search engines with a large number of search queries made on daily basis, the amount of data necessary to provide a relevant up to date result is even bigger. As reported by Google, 15 % of every day's searches are queries never made before.[105]

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[101] *Ibid.*, para. 220-223
[102] OECD. *Op. cit.* 10, p. 58
[103] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 51
[104] SCHEPP, N.-P., WAMBACH, A. *On Big Data and Its Relevance for Market Power.* In: Journal of European Competition Law & Practise. 2016, p. 122. Available at: <https://doi.org/10.1093/jeclap/lpv091>
[105] "The fact that users' queries and behaviours evolve at a high pace makes the number of queries received by a search engine even more valuable in order to identify these changes, adapt the search results and thus improve their relevance in a short period of time." In: AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 48-51

Additionally, economic advantages depend not solely on large scale of data, but also on company's technology to analyse accumulated amounts of data. If companies are not able to extract information and knowledge that they can use to improve a product or monetise services, data as such are worthless.[106] As the Commission concluded in the *Microsoft/Yahoo! Search* decision, "while the Commission notes that Google appears to perform better in terms of relevance especially for [...] queries, this does not provide evidence that scale leads to higher relevance for users, since the above studies do not take into account the technology of the different search engine which are not related to scale."[107]

3.2.3.4 SCOPE OF DATA

Besides the scale of data, companies can enjoy network effects from the scope of data. The value of the data might not only be inferred from the amount of collected data, but also from the variety of data describing particular users. The company can leverage differentiated data to improve its product or services to better target users with more personalized results. It is therefore no longer the trial-and-error, learning-by-doing from earlier queries, but trial-and-error in forecasting individual user preferences from the variety of accumulated data, such as geo-location data, browser history, user's emails or cookies.[108] The more areas of interaction between a user and a provider exist, the more tailored the offered product or services can be.[109]

Google can be an example of how the variety of data can amplify the other network effects. Google does not only aggregate data from everyone using its search engine but also from what videos they watch on YouTube, what they are writing in their Gmail accounts, what

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[106] SCHEPP, N.-P., WAMBACH, A. *Op. cit.*, p. 122; AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 48-49

[107] COMP/M.5727. *Microsoft/Yahoo! Search business*. 2010, para. 168

[108] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 186-189

[109] AUTORITAT CATALANA DE LA COMPETÈNCIA. *The Data-Driven Economy. Challenges for Competition.* 2016, p. 12. Available at: <http://acco.gencat.cat/web/.content/80_acco/documents/arxius/actuacions/Eco-Dades-i-Competencia-ACCO-angles.pdf>

their location is while using Google Maps, and a whole range of other information gathered from their use of Google's Android phones. Although each of these data can separately be of value for various companies, the combination of data from Google's different services and platforms allows it to generate knowledge on multiple aspects of user's behaviour and preferences. Companies not operating on such broad platforms lack the variety of data acquired particularly by Google, thus reducing the possibility to provide more relevant products or services.[110]

In its *Google/DoubleClick* merger decision, the Commission highlighted the significance of the scope of data as one of the factors determining the quality of collected data, alongside the sheer size of the datasets.[111] Furthermore, the scope of data was discussed also in OECD's report, in which it recognized the value of the diversification of services in leading to better "super-additive" insights. However, the crucial factor is the possibility to link data, conducing greater value and significance than the sum of isolated information.[112]

3.2.3.5 CROSS-PLATFORM NETWORK EFFECTS

Many online markets can be characterised as "multi-sided", where companies have to compete simultaneously for more than one group of users or customers, such as search engines, social media networks, or online marketplaces. Within these platforms, two or more distinct groups are brought together, among which at least one group positively values the presence of the other.[113] Multi-sided platforms can be transaction or non-transaction, depending on whether there is a direct transaction between the sides of the market. Social media networks are an example of a non-transaction platform, where users on one side use

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[110] NEWMAN, N. *Taking on Google's Monopoly Means Regulating Its Control of User Data.* In: The Huffington Post. 2013. Available at: <https://www.huffingtonpost.com/nathan-newman/taking-on-googles-monopol_b_3980799.html>

[111] COMP/M.4731. *Google/DoubleClick.* 2008, para. 273

[112] OECD. *Op. cit.* 14, p. 27

[113] Structure similar to newspapers (readers and advertisers), television (viewers and advertisers) and radio (listeners and advertisers) to airports (airlines and passengers) or shopping centres (buyers and shops). In: AUTORITAT CATALANA DE LA COMPETÈNCIA. *Op. cit.*, p. 10

the network for free without any interaction with the advertisers on the other side of the market, who make use of data provided by users themselves.[114]

Multi-sided platforms are prone to be affected by the cross-platform network effect that refers to effects by which members of one user group on a network attract members of another user group.[115] Generally, the cross-platform network effect occurs when an increasing number of users on one side of the multi-sided platform attracts more advertisers or suppliers on the other side, which successively enhances user demand for the platform because a greater scale of advertisers or suppliers can offer better personalized products and services.[116] The cross-platform network effect can be further amplified by the presence of data. Using the social network Facebook as an example, it can be observed how the growth of active users on the free side can spill over to the other side of the platform, attracting more advertisers who want to reach those users.[117]

The aforementioned network effects and economies of scale and scope increase the possibility that a merger will give rise to a "tipping". This phenomenon refers to a situation where network effects may lead to a market being dominated by one product or service.[118] Some economists and lawyers argue that a market tipped due to networks effects caused by data-driven business conduct lacks the incentive of both dominant and ousted companies to further invest in innovation; that is because the ousted companies are aware of a dominant firm offering higher quality products and services, and having significantly lower marginal costs of innovation.[119] However, a mere existence of such effects does not necessarily imply that the market will tip to a dominant provider and entrench a dominant platform.[120]

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[114] JONES, A., SUFRIN, B. *Op. cit.,* p. 49
[115] LERNER, A. V. *Op. cit.*, p. 56
[116] See also STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 189; LERNER, A. V. *Op. cit.*, p. 56
[117] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 193-196
[118] JONES, A., SUFRIN, B. *Op. cit.,* p. 1173
[119] See, for instance, PRUFER, J., SCHOTTMÜLLER, C. *Competing with Big Data.* 2017. Available at: <https://ssrn.com/abstract=2918726>; LUNDQVIST, B. *Op. cit.* 55, p. 6
[120] For further analysis see LERNER, A. V. *Op. cit.*, p. 56-61

Having said that, a phenomenon called "multi-homing" can also have significant competitive implications. Multi-homing refers to the practise of participating on more platforms simultaneously.[121] Users multi-home while utilizing multiple providers even for the same task, enabling multiple providers collecting data on the same users. Moreover, the demand side of providers or advertisers tends to multi-home as well placing advertisements and service offerings on multiple platforms to reach more users.[122] Due to significant multi-homing by users, rival providers have access to data from the same individual users, and access to user data is unlikely to create a material barrier to entry and competition. As a result, multi-homing reduces the competitive significance of cross-platform network effects, since it allows even networks with small scale to compete effectively.[123] Furthermore, it reduces the tendency of a market to tip to a dominant platform.[124] The Commission adopted similar conclusion in *Facebook/WhatsApp* merger decision stating that active multi-homing in communications apps ensures that the merged entity will not become an exclusive provider to its users and the market will still be open for competitors that are able to gain users even though the users stay on the merged entity's network.[125]

3.2.3.6 DISCLAIMER

The existence of networks effects and economies of scale and scope is not tied to the presence of data on the market. Even if a company would not collect larger amounts of user data, it would be still able to operate in a multi-sided platform market with, for instance, users on the one side and advertisers on the other. In that case, advertisers would still benefit from a larger user base, users would probably still be subsidised by advertising and would still be inclined to products and services with more popularity and demand from other users. However, the above analysis aims to demonstrate how the use of data can amplify and enhance the

[121] LERNER, A. V. *Op. cit.*, p. 22
[122] LERNER, A. V. *Op. cit.*, p. 5
[123] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1137
[124] For further analysis of other phenomena affecting the significance of cross-platform network effects, such as congestion and repulsion, see LERNER, A. V. *Op. cit.*, p. 58-61
[125] COMP/M.7212. *Facebook/WhatsApp*. 2014, para. 110-111, 133

implications of network effects and economies of scale and scope on data-related markets. Consequently, the intensified positive feedback can be used to improve user targeting, hence better monetisation of services, and hence better services to the benefit of users. To conclude, even though data may not constitute a driving factor for the aforementioned effects, the author finds it important to disclose the presence of data collecting mainly on multi-sided platform markets might reinforce the relationship between platform sides and the market position of the company.[126]

3.3 DATA CHARACTERISTICS MITIGATING ITS COMPETITIVE CONCERNS

3.3.1 AVAILABILITY OF DATA

The existence of data features that can contribute to a high availability of data may, eventually, reduce the risk that differentiated access to such data among competitors could harm competition.[127] Non-rivalry of consumption refers to the degree to which the consumption of a resource affects the potential of the resource to meet the demands of others. Oil, for instance, is a pure rivalry good since it can be consumed only once.[128] Data is, however, considered to be of a non-rivalrous nature. It implies that if one company has access to a piece of data, it does not prevent its competitors from acquiring the identical piece of data as well, because the same data can be sold many times to many companies, which can use the data even simultaneously and for different purposes; furthermore, the same information can be used multiple times by the same company without using it up.[129] There is not one company in any sector who can, or does, control all of the data created in the world.

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[126] The same observation was referred to in Journal of European Competition Law & Practise in article *"Economist's Note. On Big Data and Its Relevance for Market Power Assessment"* by Professor Achim Wambach, Chairman of the Monopolies Commission in Germany and Nils-Peter Schepp, Senior Economist at the Monopolies Commission. *Op. cit.*, p. 122-123.
[127] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 36
[128] OECD. *Op. cit.* 17, p. 24
[129] OECD. *Exploring the Economics of Personal Data: A Survey of Methodologies for Measuring Monetary Value.* In: OECD Publishing, OECD Digital Economy Papers, No. 220. 2013, p. 25. Available at: <http://dx.doi.org/10.1787/5k486qtxldmq-en>; SCHEPP, N.-P., WAMBACH, A. Op. cit., p. 121

The similar concept holds for users. Previously mentioned multi-homing is a perfect illustration of how users themselves share their data even for the same service with multiple providers, none of which has any exclusivity on those data.[130] However, if users were required to pay for each site, it would most likely prevent them from spending the same money on another site. But in today's setting, users may furnish the basic information, such as age, email addresses, shopping habits, to as many sites as they wish without lowering their income.[131]

In the context of the non-rivalrous nature of data, it has also been claimed that data is ubiquitous, inexpensive, widely available and easy to collect.[132] Easy internet access almost everywhere and smartphone usage make sure that users are constantly generating data and leaving traces of their needs and preferences. Data brokers' task is to collect as much data as possible to further sell it to companies that find it valuable. Government agencies provide some data even for free.[133] As a result, the newly established company can acquire first data and tools and mechanisms for data storage and analysis already when it launches from third-party sources. Having said that, companies can benefit from insights into consumers' needs and preferences before any user has even interacted with their newly created platform. Data has, therefore, near-zero marginal costs for production and distribution.[134]

3.3.1.1 FACTORS POTENTIALLY LIMITING DATA AVAILABILITY

The characteristics of ubiquity, low cost, and wide availability make big data different from factors and aspects generally considered as prone to be anti-competitive. That, however, does not preclude the existence of a potential impediment to effective competition due to the data-

[130] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 36-37; SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1137
[131] KENNEDY, J. *The Myth of Data Monopoly: Why Antitrust Concerns About Data Are Overblown.* 2017, p. 7. Available at: <http://www2.itif.org/2017-data-competition.pdf>
[132] TUCKER, D. S., WELLFORD, H. B. *Op. cit.*, p. 4; SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1136;
[133] KENNEDY, J. *Op. cit.,* p. 10
[134] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1136-1137

related merger.[135] Neither does it imply that data are accessible to all competitors, nor that individuals or companies cannot be excluded from utilisation of data. The French Autorité de la concurrence and the German Bundeskartellamt analysed various factors potentially limiting the availability feature of data in their joint paper that will be presented below.[136]

Firstly, companies incurring high costs to collect and store data of a significant relevance obviously want to maintain an exclusive control over such data; thus, they may decide to limit its further use and forwarding to third parties.[137] Excludability of data induces companies' incentive to be first to gain access to particular data as it can result in a competitive advantage.[138]

The second factor potentially reducing the level of data availability are various types of costs. Firstly, companies may need to incur high costs as investments to collect and use huge amounts of data. Such high level of fixed costs may prevent new entrants from using the same volume and variety of data compared to bigger incumbents. Secondly, as explained above, companies offer better product and services thanks to data from previous interactions with users enabling companies to learn users' preferences and predict their behaviour. To access these data, companies need to establish a sufficiently large user base for themselves by offering services at the high quality level, which may require further investments, notably in research and development.

Thirdly, using third parties' data serves as an alternative to direct collection of data. These so-called data brokers accumulate information from several sources, such as their own data collection technology, tracking technologies on websites based on contracts with website owners, public authorities or third-party companies. Indeed, using intermediate access to data might be less costly due to lack of fixed costs. On the other hand, there might be several

[135] TUCKER, D. S., WELLFORD, H. B. *Op. cit.*, p. 4
[136] See further AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 36-42
[137] SCHEPP, N.-P., WAMBACH, A. *Op. cit.*, p. 121, STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 45
[138] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 45

disadvantages, such as limited scale or scope of data, specific costs due to technical constraints[139], legal or contractual provisions that may prohibit or constrain the possibility to share data with third parties.

To conclude, data-related mergers need a case-by-case analysis in order to determine all factors affecting the anti-competitive nature of the concentration through the availability of data. In cases where competition authorities believe that newly merged entity would end up acquiring and exploiting a dominant position, they may require merging companies to make data available to competitors.[140]

3.3.2 SUBSTITUTABILITY OF DATA

The substitutability of data is another aspect of data potentially decreasing the possibility of its anti-competitive implications. According to Horizontal Merger Guidelines, it is less likely that a merger will significantly impede effective competition, in particular through the creation or strengthening of a dominant position, when there is a high degree of substitutability between the products of the merging companies and those supplied by rival competitors.[141]

Online platforms are quite distinguished and differentiated, hence the most useful and valuable data to one company does not necessarily mean the same to the other, even if they provide the same service. The level of relevance of particular data among platforms varies.[142] Because of that, what actually needs to be kept in mind is one particular of the four crucial "Vs" of big data, the variety of data. In the context of mergers, the value of the target's company lies not in data the acquirer already owns, but rather in its varied and non-

[139] "Finally, the provision of high-quality data can require significant time and up-front investments before the data can be shared. These include the costs related to i) datafication, ii) data collection, iii) data cleaning and iv) data curation." In: OECD. *Op. cit.* 14, p. 191
[140] KENNEDY, J. *Op. cit.,* p. 11
[141] EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 31. 2004, para. 28
[142] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1139

substitutable data. The issue with data-driven mergers, therefore, is whether a newly merged entity may likely, through acquiring access to a greater variety of data, attain or maintain significant market power, leverage its dominance into another market, or impede competition in any side of the multi-sided market in any way.[143]

3.3.3 VALUE OF DATA

The value of data has a limited span of life. The most recent information has generally higher value as it lessens considerably over time. Therefore, for a company to have a sustainable competitive advantage, it needs to continuously refresh the data in order to always possess real-time up to date information.[144] As wisely pointed out by Competition Commissioner Vestager, *"... It might not be easy to build a strong market position using data that quickly goes out of date. So, we need to look at the type of data, to see if it stays valuable."*[145] Any competitive advantage from data is temporary and new entrants are not necessarily disadvantaged in relation to the incumbent when it comes to data collection and analysis. Conversely, it means that the incumbent is not necessarily benefitted by the possession of a large volume of data as velocity is needed to create the value of it.[146]

It is important to note that not all data is commercially valuable and significant. However, even if the existence of machine-learning tool does make it easier to predict a value of data, it might not be able to do so in given context or in advance. Some academics believe that regulators assessing a merger should not speculate about some future value discovery.[147] In addition, OECD conducted a research into the matter of the economic and social value of data and concluded that the estimations of value are highly context dependent. In the report,

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[143] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 136-137
[144] KENNEDY, J. *Op. cit.,* p. 7
[145] VESTAGER, M. *Op. cit.* 49
[146] SOKOL, D. D., COMERFORD, R. *Op. cit.*, p. 1138
[147] SIVINSKI, G., OKULIAR, A., KJOLBYE, L. *Op. cit.,* p. 209-210

OECD also emphasized the importance of network effects when determining the value of data, and their implications on the competition.[148]

[148] „The monetary value of a phone number, in and of itself, may be relatively low as a standalone item. However, when that phone number is tied with an income level and a set of particular interests, the monetary value of the phone number would likely increase for some market participants. So, prices observed in the market need to be considered in context." In: OECD: *Op. cit.* 17, p. 27, 34

4 THEORIES OF HARM RELATED TO DATA

4.1 GENERAL

When competition authorities allege that a proposed merger breaches competition rules, a well-developed theory of harm should be presented. A convincing theory of harm should be internally logically consistent and should articulate how the merger might harm competition and, ultimately, consumers. It should be consistent with the parties' incentives and the available empirical evidence.[149] There are several theories of harm related to data-driven mergers.

4.2 COMBINATION OF DATA

Referring to Merger Guidelines[150], a traditional merger analysis concentrates on the substitutability of goods, whereas data-driven mergers may often revolve around the variety, i.e. non-substitutability of data as a potential source of market power.[151] A strategic aim of a merger could be to acquire and better access additional data of another merging party, which can post-merger be linked and combined with company's existing datasets. This might be a case not only in horizontal mergers but also in conglomerate mergers, where an access to a more heterogeneous and diverse data combination may strengthen the previously mentioned economies of scope.[152] Eventually, the accumulation of merging parties' datasets could result in a competitive advantage of a unique database, when companies might more easily improve their products and services post-merger in a way that competitors might not be able to match.[153] In case there is not a possibility of competitors to replicate the information extracted from the data combination of the merged entity, competition authorities may have to assess

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[149] ZENGER, H., WALKER, M. *Theories of Harm in European Competition Law: A Progress Report.* 2012, p. 1. Available at: <https://ssrn.com/abstract=2009296>; JONES, A., SUFRIN, B. *Op. cit.,* p. 46-47
[150] EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 31. 2004, para. 28
[151] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 106
[152] SCHEPP, N.-P., WAMBACH, A. *Op. cit.*, p. 123
[153] OCELLO, E. et al. *Op. cit.* 6, p. 6

possible restraints of competition.[154] The concerns that increased accumulation of data poses threats to a healthy competition environment were discussed in several merger cases, for instance, *Google/DoubleClick, Telefónica UK/Vodafone UK/Everything Everywhere/JV* and *Microsoft/LinkedIn*, which will be analysed below in the fifth chapter.

4.3 INPUT FORECLOSURE

Input foreclosure is a common concern in the context of data-driven mergers where data constitutes an important input for the downstream product. Within the meaning of the Non-Horizontal Merger Guidelines, input foreclosure occurs when the newly merged entity is likely to restrict access to the data on the upstream market, which it would have supplied to the customers downstream absent the merger. It is not necessary to force competitors out of the market for the merger to give rise to a significant impediment of effective competition, it is enough that the increased input costs would lead to higher prices for the consumers.[155] The Commission needs to establish three factors to constitute the input foreclosure theory of harm: the ability of the merging parties to foreclose its actual or potential competitors the access to input, the economic incentive to do so, and the overall likelihood of significant detrimental effect on competition, thus causing harm to consumers.[156] In the assessment of the likeliness of input foreclosure scenario, the Commission assesses the effect on competition in the light of countervailing factors and efficiencies substantiated by the merging parties.[157]

Input foreclosure can take various forms. The merger may allow the merging parties to increase the costs of downstream rivals in the market thereby leading to an upward pressure

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[154] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 16
[155] EUROPEAN COMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para. 31
[156] EUROPEAN COMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para. 32; SIVINSKI, G., OKULIAR, A., KJOLBYE, L. Op. cit., p. 214-215
[157] EUROPEAN COMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para. 51-52

on their sales prices, raise barriers to entry to potential competitors in case the merged entity would be likely not to supply potential downstream entrants, or only on less favourable terms than absent the merger and/or otherwise make conditions for downstream competitors to obtain data more difficult thereby significantly impeding effective competition.[158]

TomTom/Tele Atlas, Telefónica UK/Vodafone UK/Everything Everywhere/JV, Publicis/Omnicom and *Microsoft/LinkedIn* merger decisions concerning analysis of potential input foreclosure theory of harm will be discussed below in the fifth chapter.

4.4 DATA TO STRENGTHEN POSITION

A merger of two companies in separate upstream and downstream markets, where they hold strong market positions, has the ability to prevent new competitors, or start-ups, from entering the market. The idea is to get control over potential new competitors by acquiring them before they increase their market power and pose too much competition or to make sure that other, already existing competitors do not acquire them sooner.[159] Online service providers consuming big personal data may want to merge with software and hardware producers to gain access to downstream company's valuable data-troves which they have collected from the users using their services and products.[160] This type of acquisition can increase the incumbent's market power and provide the ability to raise prices, reduce outputs and quality, thus harming competitors and, ultimately, consumers.[161]

The major merger decisions dealing with this theory of harm were adopted in *Facebook/WhatsApp* and *Microsoft/LinkedIn* cases and will be discussed in greater detail below in the fifth chapter.

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[158] EUROPEAN COMISSION. *Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 265. 2008, para. 47-50
[159] STUCKE, M. E., GRUNES, A. P. *Op. cit.* 11, p. 74-99.
[160] AUTORITÉ DE LA CONCURRENCE & BUNDESKARTELLAMT. *Op. cit.*, p. 16.
[161] EUROPEAN COMISSION. *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings*. OJ C 31. 2004, para. 8

5 MERGER DECISIONS CONCERNING DATA IN THE AMBIT OF BIG DATA[162]

5.1 TOMTOM/TELE ATLAS

5.1.1 THE PARTIES AND BACKGROUND

TomTom/Tele Atlas merger analysis was conducted in line with the Commission's recently adopted Non-Horizontal Merger Guidelines.[163] TomTom, a manufacturer of portable navigation devices ("PNDs") and a supplier of navigation software for use in navigation devices, launched an offer for all issued and outstanding publicly listed shares of Tele Atlas, one of two main suppliers of digital map databases for navigation and other end-uses, both in Europe and North America. The proposed transaction was considered a concentration within the meaning of EU Merger Regulation, nevertheless without a Community dimension since the parties did not meet the turnover thresholds. The concentration would, however, have been subject to investigation in four Member States; therefore, the referral of the proposed transaction to the Commission sent by TomTom was accepted. The proposed transaction was deemed to have the Community dimension and has been examined by the Commission.[164]

The Commission defined an upstream market for digital map databases, i.e. a compilation of digital data used mostly for address location, route planning and navigation, and a downstream market for navigation devices including PNDs. The key competition concern was whether the vertical integration of TomTom and Tele Atlas would potentially

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[162] The author is aware of the complexity and multiplicity of issues present in the examined merger cases. Nevertheless, the author will into greater detail analyse only several issues of the merger decisions that the author considers relevant and within the scope of the topic of this thesis.
[163] EUROPEAN COMMISSION. *Press release. Mergers: Commission clears TomTom's proposed acquisition of digital map provider Tele Atlas.* Brussels, 2008. Available at: <http://europa.eu/rapid/press-release_IP-08-742_en.htm>
[164] COMP/M.4854. *TomTom/Tele Atlas.* 2008, para. 1-6

significantly impede competition, in the light of TomTom's strong position on the market for PNDs and the duopoly market for navigable digital maps, consisting of Tele Atlas and NAVTEQ.[165]

5.1.2 INPUT FORECLOSURE

As likewise articulated in the Annual Report on Competition Policy 2008 and the accompanying Commission Staff Working Document, the key competition concern in the proposed merger of TomTom and Tele Atlas was the likelihood of anti-competitive vertical input foreclosure.[166] The Commission assessed this theory of harm by examining whether the merged entity would prevent other PND providers from competing with TomTom by engaging in various strategies, such as lower quality map databases or their increased prices, or delay in the availability of new features and updates. The merging parties' rationale of the merger was, however, to bring efficiencies, namely "better maps – faster".[167]

Regarding the likelihood of input foreclosure scenario, the Commission came to the conclusion that the merged entity would be likely to acquire the ability to foreclose competing manufacturers of PNDs and software manufacturers either by increasing the prices, providing maps in degraded quality or by delaying updates. The conclusion was based on three supporting arguments. Firstly, the merged entity's significant degree of market power in the upstream market for navigable digital map databases (Tele Atlas sold map databases above marginal a cost, had market share of over 50% and had only one competitor with similar coverage and product quality level); secondly, the input constituting an important input for the downstream market (the navigable digital map databases being considered critical components for the production of PNDs); thirdly, no sufficient, timely

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[165] *Ibid.,* para. 27, 71
[166] EUROPEAN COMMISSION. *Report on Competition Policy 2008.* COM(2009) 374 final. 2009, p. 19. Available at: <http://ec.europa.eu/competition/publications/annual_report/2008/en.pdf>;
EUROPEAN COMMISSION. *Commission Staff Working Document. Report on Competition Policy 2008.* SEC(2009)1004 final. 2009, p. 61-62. Available at:
<http://ec.europa.eu/competition/publications/annual_report/2008/part2_en.pdf >
[167] *Ibid.,* para. 190, 245

and effective counter-strategies from competing companies or new entrants eliminating the ability of merged entity to foreclose access to input (other competitors in the upstream market did not constitute enough constraints on Tele Atlas, nor would a new entry on the market be likely possible, and the licences intermediaries had with both companies, granting them more favourable conditions irrespective of the merger, only represented a third of the market).[168]

Furthermore, the Commission also assessed the incentive of the merged entity to engage in input foreclosure scenario. Based on the calculations and tests conducted by the Commission, the merged entity would not have the incentive to adopt total foreclosure strategy (restrict supplying map databases to competitors altogether) or partial foreclosure strategy (increasing prices or degrading the quality of map databases supplied to competitors) in a manner that would lead to anti-competitive effects on the downstream market. Furthermore, the parties argued that integrating TomTom's data to improve Tele Atlas' map databases would create significant efficiencies. Confronting the paragraph 47 of the Non-Horizontal Merger Guidelines, *"a merger will raise competition concerns because of input foreclosure when it would lead to increased prices in the downstream market thereby significantly impeding effective competition"* and based on all of the above, the Commission concluded that it would be unlikely that the proposed merger would significantly impede competition to the detriment of end-users. The decision did not rely on efficiencies arising out of the merger; the Commission, however, noted that taking into account efficiencies would only further strengthen the conclusion.[169]

[168] *Ibid.,* para. 193-210
[169] *Ibid.,* para. 211-230, 251

5.2 GOOGLE/DOUBLECLICK

5.2.1 THE PARTIES AND BACKGROUND

The *Google/DoubleClick* merger *"generated considerable public interest as it concerned the ubiquitous search engine that most Europeans use in their daily lives"*, contemplated in the Commission Staff Working Document accompanying the Report on Competition Policy 2008.[170] The *Google/DoubleClick* merger was one of the first instances where the Commission incorporated big data considerations into the merger assessment.[171] Google operated free of charge internet search engine and provided free functionalities and web-based software, such as searches facilitating toolbar, Gmail, Google Maps, YouTube, etc. The most profitable service was, however, providing online advertising space on its own websites as well as on partner websites. DoubleClick was a leading provider of ad serving, management, and reporting technology, accompanied by ad exchange platform and search engine management agency. Google was to acquire all of the shares of the parent holding company owning DoubleClick, which constituted a concentration. The proposed transaction did not meet the turnover thresholds and lacked Community dimension; nevertheless, the concentration was capable of being reviewed under the national competition laws of five Member States, none of which opposed the referral to the Commission. Therefore, the proposed concentration was deemed to have a Community dimension and was assessed under EU competition law.[172]

5.2.2 COMBINATION OF DATA

The Commission investigated foreclosure scenario resulting from the combination of Google's and DoubleClick's data assets. From a factual point of view, the merged entity

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[170] EUROPEAN COMMISSION. *Commission Staff Working Document. Report on Competition Policy 2008.* SEC(2009)1004 final. 2009, p. 67. Available at: <http://ec.europa.eu/competition/publications/annual_report/2008/part2_en.pdf>

[171] KADAR, M., BOGDAN, M. *"Big Data" and EU Merger Control – A Case Review.* In: Journal of European Competition Law & Practise, 2017, Vol. 8, No. 8. 2017, p. 479. Available at: <https://doi.org/10.1093/jeclap/lpx040>

[172] COMP/M.4731. *Google/ DoubleClick.* 2008, para. 1-7

could use IP addresses, cookie IDs and connection times to figure out which search terms were used and what websites were visited, which could result in individual users' search histories to be linked with past behaviour on the internet. Combining both data collections could be afterwards used to better target ads to users, eventually allowing the merged entity to achieve a position not replicable by competitors.[173]

The parties dismissed this theory claiming existing contracts with advertisers prevented the use of data for behavioural targeting. Regarding the Commission's arguments about possible contract modifications or renegotiations, the parties claimed that there are no incentives for DoubleClick to renegotiate those provisions as their non-neutral position as a service provider could prompt customers to switch to a rival competitor; and they have no ability to renegotiate either, since advertisers do not have an interest in other advertisers having access to their data. Even if of a contractual change occurred, the type of data collected by DoubleClick was not considered an essential input for profitable online advertising resulting in a competitive advantage, as it was already available to competitors and could be accessed through third-party data collectors or internet service providers. The Commission, therefore, concluded that combining Google's and DoubleClick's datasets was unlikely to squeeze out competitors and enable them to charge higher prices for their intermediation services.[174] The decision was repeatedly sustained and confirmed by Competition Commissioner Margrethe Vestager in her "Making data work for us" speech in Copenhagen in 2016.[175]

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[173] *Ibid.,* para. 359-360
[174] *Ibid.,* para. 359-366
[175] VESTAGER, M. *Making Data Work for Us.* Copenhagen, 2016. Available at: <https://ec.europa.eu/commission/commissioners/2014-2019/vestager/announcements/making-data-work-us_en>

5.3 TELEFÓNICA UK/VODAFONE UK/EVERYTHING EVERYWHERE

5.3.1 THE PARTIES AND BACKGROUND

Telefónica UK, Vodafone UK, together with Everything Everywhere notified the Commission of a proposed merger where the three parties would acquire joint control over a newly created company constituting a joint venture. The merged entity would provide various mobile commerce services to the merging parties or third party mobile operators. The merging companies would hold 33,3% of the shares and the possibility to exercise decisive influence through negative control in the joint venture. The joint venture was considered a full-functioning joint venture performing the functions of an autonomous economic entity on a long-lasting basis, thus constituting it a concentration within the meaning of EU Merger Regulation. The proposed merger fulfilled turnover thresholds requirements and had the Community dimension.[176]

"Mobile commerce is a nascent sector that may radically change the consumer buying experience in the next few years. The proposed joint venture is one of several initiatives to develop the sector in Europe. The Commission is keen on promoting innovation in this area and ensuring that the markets remain open so that a number of competing solutions can emerge without undue obstacles, to the benefit of consumers." Joaquín Almunia, former Commission Vice President in charge of Competition policy.[177]

5.3.2 COMBINATION OF DATA AND INPUT FORECLOSURE

Apart from its core activities, the joint venture would also provide data analytics services involving data collected from its other activities. The joint venture would rely on three

[176] COMP/M.6314. *Telefónica UK/Vodafone UK/Everything Everywhere/JV*. 2012, para. 1-13
[177] EUROPEAN COMMISSION. *Press release. Mergers: Commission clears the creation of a mobile commerce joint venture by UK mobile operators Telefónica, Vodafone and Everything Everywhere*. Brussels, 2012. Available at: <http://europa.eu/rapid/press-release_IP-12-938_en.htm>

sources of data, namely basic customer data collected by mobile network operators, data gathered via users' "mobile wallets" and data acquired on the basis of contracts with merchants. The concern was that the joint venture company would use merged data and data acquired by its own other services and analyse it all in order to provide its customers with valuable insights into customer behaviour. The Commission therefore investigated whether by merging a wide range of consumer data from various sources (personal information, location data, social behaviour data, browsing data, etc.), the joint venture would generate a unique, non-replicable database constituting an essential input for targeted mobile advertising. As a result, the joint venture would cause a foreclosure of competing providers of data analytics or targeted advertising services, meaning that other providers of mobile advertising services might be dependent on the joint venture or might be unable to compete.[178]

The Commission claimed that since customers are inclined to provide their personal data to many companies active on the market, information available to the joint venture was, to a large extent, likewise accessible to existing or new competitors. In regard, the Commission pronounced such data to be generally understood as a commodity. Furthermore, the majority of respondents to the market investigation assumed that there would be alternatives to which they could switch in case the joint venture raised its prices. Based on all information available, the Commission came to the conclusion that the merger would not foreclose competing providers of advertising services and it would not have a negative impact on competition on the market for (mobile) data analytics, market research services or marketing information services.[179]

According to the Annual Report on Competition Policy 2012, *"... the Commission's central concern was to ensure that these types of markets remain open so that a number of competing*

[178] *Ibid.,* para. 529-534
[179] *Ibid.,* para. 543-557

solutions can emerge without undue obstacles."[180] The Commission's approach is evidently based on the test whether a particular database would post-merger become an essential input crucial for competitors to access, but at the same time non-replicable and unmatchable by them. The main factors determining the essentiality of a database are the nature of data themselves, the tools required to gather such data and the ability of competitors to access such data through other sources.[181]

5.4 PUBLICIS/OMNICOM

5.4.1 THE PARTIES AND BACKGROUND

Publicis was an international provider of advertising services including digital advertising, creative services or media strategy. Omnicom was a global advertising, marketing and corporate communications company offering a range of advertising, marketing, media or other related services. The transaction aimed to create a large advertising company, in which the shareholders of Publicis and Omnicom would each hold approximately 50% of the equity of the merged group.[182] The Commission concluded that all requirements necessary for the EU merger assessment were fulfilled and launched an investigation.[183]

5.4.2 INPUT FORECLOSURE

The parties indicated that one of the rationales of the proposed merger was to develop its activity in "big data" analytics. On that account, the Commission first tried to predict the

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[180] EUROPEAN COMMISSION. *Report on Competition Policy 2012.* COM(2013) 257 final. 2013, p. 9. Available at: <http://ec.europa.eu/competition/publications/annual_report/2012/part1_en.pdf>

[181] DAVILLA, M. *Is Big Data a Different Kind of Animal? The Treatment of Big Data Under the EU Competition Rules.* In: Journal of European Competition Law & Practise. 2017, p. 376. Available at: <https://academic.oup.com/jeclap/article-abstract/8/6/370/3852258>

[182] "… HoldCo, a newly-formed Dutch holding company, will successively acquire Publicis and Omnicom. First, Publicis will merge directly with HoldCo, with HoldCo continuing as the surviving legal entity. Then, Omnicom will merge with a newly formed wholly owned subsidiary of HoldCo, Merger Sub, with Omnicom continuing as the surviving legal entity and a wholly owned subsidiary of HoldCo." In: COMP/M.7023. *Publicis/Omnicom.* 2014, para. 5

[183] *Ibid.,* para. 1-8

importance of big data in the near future as a key factor for better online advertising and attracting new customers. The assumptions about the extent to which big data might be a crucial component in conducting a business differed for competitors but were observed to be gradually more relevant mainly for companies active online. Furthermore, the Commission investigated the potential availability and access to big data for competing advertising companies post-merger, in case the merged entity was to develop its own big data analytics platform and refused the access to its competitors. Based on the investigation, the Commission came to the conclusion that the negative impact of such conduct would be limited as rival companies were at that time either using their own data analytics platform or one from third parties since a sufficient number of third-party suppliers provided big data analytics at the time of the investigation. As a result, the merged entity's big data analytics platform would likely not constitute an essential input for other advertising companies, thus preventing the emergence of input foreclosure.[184] The main reasons for declaring the merger compatible with the market were summarised in the Commission's press release as the bidding nature of the markets, the presence of other large competitors, the relatively low barriers to entry, and the significant countervailing power of media vendors.[185]

5.5 FACEBOOK/WHATSAPP

5.5.1 THE PARTIES AND BACKGROUND

Facebook provided a range of services, namely websites and mobile applications offering social networking via platform 'Facebook', consumer communication services via 'Facebook Messenger' app and photo/video sharing functionalities via platform 'Instagram'. WhatsApp was also a provider of consumer communications services via its mobile application 'WhatsApp'. Only Facebook was providing online advertising services on its websites and mobile applications, WhatsApp did not sell any advertising space. The proposed transaction

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[184] *Ibid.,* para. 625-630

[185] EUROPEAN COMMISSION. *Press release. Mergers: Commission approves merger of Publicis and Omnicom in the advertising, marketing and communication sectors*. Brussels, 2014. Available at: <http://europa.eu/rapid/press-release_IP-14-10_en.htm>

was comprised of WhatsApp successively merging with and into wholly-owned subsidiaries of Facebook, thereby Facebook solely controlling the entity into which WhatsApp would have merged. Despite a lack of Community dimension, requirements for referral to Commission were fulfilled and the Commission commenced the merger assessment.[186]

5.5.2 DATA TO STRENGTHEN POSITION

The Commission examined potential anti-competitive issues regarding data in relation to online advertising services that constituted a relevant market on their own. The core of the investigation was potential data concentration to the extent that it was likely to strengthen Facebook's position in the online advertising market or any sub-segments. From the factual point of view, only Facebook was active in the provision of online advertising services, which was based on the analysis of data gathered from Facebook's users, such as information about age, gender, or activities users were interested in. On the contrary, WhatsApp did not collect any data valuable for advertising purposes (except for users' names and the mobile phone numbers associated with their accounts) at the time of the investigation, nor did it engage in the online advertising business. The Commission analysed two theories of harm based either on using WhatsApp as a source of user data for the purpose of targeted advertising, or on introducing advertisement to WhatsApp itself.[187]

Firstly, the Commission assessed market with WhatsApp as a potential provider of online advertising space, which could have the effect of reinforcing Facebook's position. Changing WhatsApp's privacy policy would theoretically allow to introduce targeted advertising on this platform. Nonetheless, Facebook might lack the incentive since as a result of deviating from the "no ads" product strategy, users might switch to competing apps free of advertisements. Furthermore, abandoning end-to-end encryption could create dissatisfaction among the users who significantly value privacy and security, and again result in the loss of

[186] COMP/M.7217. *Facebook/WhatsApp.* 2014, para. 1-12
[187] *Ibid.,* para. 79, 164-167

users. This effect could be demonstrated by a high number of German users switching from WhatsApp to another application within 24 hours from the announcement of the merger. Even if Facebook used WhatsApp for online advertising as an advertising space, there would still remain a sufficient number of other actual or potential competitors who were equally well placed as Facebook to offer online advertising place. Therefore, the Commission concluded that in any event, the transaction would not raise any competition concerns.[188]

Secondly, the Commission explored a scenario, in which Facebook would nonetheless initiate collecting data from WhatsApp users post-merger to improve the accuracy of targeted advertisements on Facebook's services shown to users who were also active on WhatsApp. Consequently, Facebook would strengthen its position on the account of the greater amount of user data under Facebook's control. Regarding Facebook's ability to collect data from WhatsApp, this would require amendments to WhatsApp's privacy policy, overcoming major technical obstacles to link each user's WhatsApp profile to their Facebook profile, and abandoning the end-to-end encryption. Regarding Facebook's incentive, the Commission identified some indications that the merged entity might not engage in such conduct due to the realistic risk of users switching to less intrusive consumer communication apps. Nevertheless, the Commission concluded that even if such scenario occurred, the transaction would not have a significant anti-competitive impact, since a large amount of user data valuable for advertising services would still be available to other competitors beyond Facebook's exclusive control.[189]

On this basis, and the fact that the Commission did not recognize any competition concerns in regard to the other two relevant markets, namely the market for social networking services and consumer communications services, the Commission cleared the transaction unconditionally and declared it compatible with the internal market and with the EEA Agreement.[190] As summarised in Report on Competition Policy 2014, *"... The merger was*

[188] *Ibid.,* para. 168-179
[189] *Ibid.,* para. 180-189
[190] *Ibid.,* para. 191

approved without conditions, in particular in light of the dynamic nature of the market, low entry barriers and sufficient remaining competition."[191]

5.5.3 POST-MERGER EVENTS

Regarding the merger control assessment, Facebook and WhatsApp respectively publicly pledged to not merge the two databases of user information and not to violate WhatsApp's privacy policy.[192] Even though the Facebook's acquisition of WhatsApp was not challenged by the US antitrust authority Federal Trade Commission, shortly before the Commission's clearance of the transaction, the Federal Trade Commission sent a letter to the parties urging them to honour these promises made to the consumers as it otherwise could constitute deceptive or unfair practices in violation of Section 5 of the Federal Trade Commission Act.[193]

Furthermore, in December 2016 the Commission issued a Statement of Objections addressed to Facebook alleging that the company to have provided incorrect or misleading information during the merger review.[194] During the investigation, Facebook had argued that it would be unable to establish reliable, automated matching between user's accounts on Facebook and WhatsApp. However, in August 2016 WhatsApp had changed its privacy policy to actually make it able to link a user's phone number to their Facebook identity. The Commission found

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[191] EUROPEAN COMMISSION. *Report on Competition Policy 2014.* COM(2015) 247 final. 2014, p. 4-5. Available at: <http://ec.europa.eu/competition/publications/annual_report/2014/part1_en.pdf>

[192] For Facebook's statements see JESSICA GUYNN. *Mark Zuckerberg: WhatsApp worth even more than $19 billion.* In: Los Angeles Times, 2014. Available at: <http://articles.latimes.com/2014/feb/24/business/la-fi-tn-mark-zuckerberg-whatsapp-worth-even-more-than-19-billion-20140224>; JESSICA GUYNN. *Privacy Groups urge FTC to probe Facebook's deal to buy WhatsApp.* In: Los Angeles Times, 2014. Available at: <http://www.latimes.com/business/technology/la-fi-tn-privacy-groups-urge-ftc-to-probe-facebooks-whatsapp-deal-20140306-story.html>; for WhatsApp's statements see *Facebook.* In: WhatsApp Blog, 2014. Available at: <https://blog.whatsapp.com/499/Facebook>

[193] FEDERAL TRADE COMMISSION. *Letter of Jessica L. Rich, Director of Bureau of Consumer Protection*. 2014. Available at: <https://www.ftc.gov/system/files/documents/public_statements/297701/140410facebookwhatappltr.pdf>

[194] EUROPEAN COMMISSION. *Press release. Mergers: Commission alleges Facebook provided misleading information about WhatsApp takeover*. Brussels, 2016. Available at: <http://europa.eu/rapid/press-release_IP-16-4473_en.htm>

out that such possibility had already existed during merger investigation and was known to Facebook; Facebook had therefore submitted incorrect or misleading information. Eventually, the Commission fined Facebook €110 million for providing incorrect or misleading information during the Commission's 2014 investigation under the EU Merger Regulation of Facebook's acquisition of WhatsApp.[195] "Today's decision sends a clear signal to companies that they must comply with all aspects of EU merger rules, including the obligation to provide correct information. And it imposes a proportionate and deterrent fine on Facebook. The Commission must be able to take decisions about mergers' effects on competition in full knowledge of accurate facts." emphasized by Margrethe Vestager in the Commission's press release regarding the Facebook's fine.[196]

5.6 MICROSOFT/LINKEDIN

5.6.1 THE PARTIES AND BACKGROUND

Microsoft was a global technology company offering a wide range of products in technology, media and telecom sector, primarily operating systems for personal computers, servers, mobile devices, and other related or unrelated services, such as hardware devices or online advertising mainly through its search engine Bing. LinkedIn managed a professional social network generating revenue through recruiting tools, online education courses, market solutions allowing advertising to its members, and premium subscriptions fees. Through a proposed transaction, Microsoft would acquire all the shares and a sole control over LinkedIn. The transaction was considered a concentration with a Community dimension; hence the Commission launched a merger assessment.[197]

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[195] EUROPEAN COMMISSION. *Press release. Mergers: Commission fines €110 million for providing misleading information about WhatsApp takeover*. Brussels, 2017. Available at: <http://europa.eu/rapid/press-release_IP-17-1369_en.htm>

[196] EUROPEAN COMMISSION. *Press release. Mergers: Commission fines Facebook €110 million for providing misleading information about WhatsApp takeover*. Brussels, 2017. Available at: <http://europa.eu/rapid/press-release_IP-17-1369_en.htm>

[197] COMP/M.8124. *Microsoft/LinkedIn*. 2016, para. 2-7

5.6.2 COMBINATION OF DATA

The Commission first addressed the possible competitive impacts deriving from the post-merger combination of data previously held by two independent companies regarding online advertising services. Proceeding on the assumption that such data accumulation would be allowed under the applicable data protection legislation, two theories of harm potentially arising in relation to the combination of the merging parties' datasets investigated. First, the combination could increase the merged entity's market power in a hypothetical market for the supply of such data or increase barriers to entry or expansion in the market. Second, in the absence of post-merger data combination due to either technical possibilities or intentions, the merger might eliminate important competition constraints originating between the merging parties that pre-merger competed with each other on the basis of the data they controlled.[198]

The Commission dismissed both theories of harm on the following grounds. First, the merger would not reduce the amount of data available to other competitors since the merging parties did not provide access to their data to third parties for advertising purposes; if so, with very limited exceptions. Second, a large amount of data valuable for advertising purposes would still remain accessible to other competitors post-merger and not exclusively under the merged entity's control. Aside from this, the elimination of competition on the basis of data would be insignificant since the companies were small market players on the particular relevant market and only competed with each to a very limited extent. On this basis, together with the low combined market share of the merged entity, the Commission dismissed any anti-competitive concerns resulting from the combination of data in the market of online advertising services.[199]

[198] *Ibid.,* para. 167-179
[199] *Ibid.,* para. 180-181

5.6.3 INPUT FORECLOSURE

Since the increasing importance of data is a distinguishing feature of today's digital economy, there were concerns that LinkedIn data might become an important input for certain software solutions through machine learning or artificial intelligence techniques. This could have been particularly a case in the market for the customer relationship management ("CRM") software solutions, where already accumulated data together with data from LinkedIn might provide better insights. As a result, the merged entity would gain a competitive advantage making it more difficult for competitors to compete and innovate. Consequently, the Commission examined whether the merged entity could potentially prevent competitors from gaining access to LinkedIn full data thereby engaging in the input foreclosure.[200]

The Commission initially noted that at the time of the merger proposition, LinkedIn did not engage in monetization strategy by offering its data to third parties, but it remained unclear whether it would have changed. Nevertheless, the investigation led the Commission to dismiss this theory of harm due to the following reasons. First, LinkedIn did not meet the requirement of a significant degree of market power in any potential relevant upstream market, in this case for the provision of data for CRM software solutions. Second, LinkedIn's full data was not evaluated as an important input within the meaning of paragraph 34 of the Non-Horizontal Merger Guidelines. Given that all major CRM providers had already started offering advanced functionalities based on machine learning or planned to do so within the next few years, LinkedIn data was further deemed not even to become an important input in the near future. Third, LinkedIn data would constitute only one type of data valuable for machine learning, and LinkedIn would become only one of the sources of such data already available for machine learning. As regards to the Microsoft's incentive, the investigation showed that any foreclosing strategy could possibly translate into substantial financial losses, which might not be compensated by gains from the expanding market shares within the market. Microsoft's intentions communicated in their internal documents and their behaviour

[200] *Ibid.,* para. 246; OCELLO, E., SJÖDIN, C. *Microsoft/LinkedIn. Big data and conglomerate effects in tech markets.* In: Competition Merger Brief 1/2017. 2017, p. 2. Available at: <http://ec.europa.eu/competition/publications/cmb/2017/kdal17001enn.pdf>

regarding their other products suggested that they on the contrary had an incentive to continue collaborations with other providers. In the light of the above, the Commission identified the transaction as unlikely to have a negative impact on effective competition in the relevant market, and to eventually lead to consumer harm.[201]

5.6.4 DATA TO STRENGTHEN POSITION

The third theory of harm in relation to data was based on concern that post-merger, the combination of Microsoft's operating systems and productivity software with LinkedIn's professional social network ("PSN") services could strengthen LinkedIn's position in the market for PSN services. As repeatedly acknowledged in the Commission Staff Working Document, at the time of the investigation LinkedIn's market power had already been significant, thus the increase in its user base would make it more difficult for other companies to provide PSN services in the EEA; the merger hence entrenching LinkedIn's position and consequently leading to the foreclosure of other competitors and harm to competition.[202]

The market investigation demonstrated both the merged entity's ability and incentive to pre-install a LinkedIn application on Windows personal computers and integrate LinkedIn features into Office. This strategy could potentially lead to a growth of the size and usage of LinkedIn's PSN platform in a way that competitors could be unlikely to match. The effect could be additionally enhanced by virtue of network effects present on the market for PSN services, which would not likely be sufficiently reduced by multi-homing or by the entry of new PSN service provider. This market situation could eventually lead to market tipping in favour of LinkedIn's platform.[203]

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[201] *Ibid.,* para. 253-277
[202] *Ibid.,* para. 295; EUROPEAN COMMISSION. *Commission Staff Working Document. Report on Competition Policy 2016.* SWD(2017) 175 final, p. 48. Available at: <http://ec.europa.eu/competition/publications/annual_report/2016/part2_en.pdf>
[203] *Ibid.,* para. 338-347

The potential detrimental effect of the strengthened market position would be twofold. First, LinkedIn's platform would become the only PSN service provider in the EEA, thus robbing consumers of other choices and making an entry of competing companies almost impossible. Second, in case these foreclosure effects would lead to the marginalisation of an existing competitor that offers a greater degree of privacy protection, the merger would also reduce consumer choice in relation to that important privacy parameter of competition when choosing a professional social network. For all the above reasons, the Commission concluded that the transaction will likely have a negative impact on effective competition in the market for PSN services in EEA.[204]

Competition Commissioner Margrethe Vestager commented on the decision saying that *"A growing number of Europeans subscribe to professional social networks. These networks are important for professionals to connect and interact and to find new career opportunities. Today's decision ensures that Europeans will continue to enjoy a freedom of choice between professional social networks."*[205]

[204] *Ibid.,* para. 348-352
[205] EUROPEAN COMMISSION. *Press release. Mergers: Commission approves acquisition of LinkedIn by Microsoft, subject to conditions.* Brussels, 2016. Available at: <http://europa.eu/rapid/press-release_IP-16-4284_en.htm>

6 CONCLUSION

The digital economy is nowadays considered to be a symbol of growing power and potential of big data and data in general. In 2014, former Director-General for Competition Alexander Italianer summarised competition policy in the digital age saying that Internet's ease of use, worldwide reach, and speed of innovation provide new dimensions to the classic competition concerns.[206] Today's digital environment helps incumbent or new companies in various sectors outperform their competitors, encourages them to compete, innovate and create value not only, but to a large extent thanks to big data. Big data is a blanket term that covers collections of almost all forms of data that are massive in size, complex and heterogeneous, such that conventional data management means lack the ability to process them. Such data is generated by the interaction of individuals and companies and may be either voluntarily disclosed or observed as a by-product, often without the knowledge of the user. The significance of big data does not revolve solely around the size of data collected by the company, but rather company's ability to efficiently utilise gathered data by optimising working processes, improving quality of their products and services through for instance personalisation, or even creating a new quality. As Hal Varian, chief economist at Google pointed out – it's not about the quantity or quality of the ingredients, but about the recipe.[207]

Big data allows collecting, processing and linking previously unimaginably large amounts of data that makes it possible to predict human behaviour and identify data patterns, trends, and correlations. As data is becoming a valuable asset and an essential input factor, it is more and more important to assess its role from a competition law perspective, particularly in terms of merger control policy. In the context of concentrations, an attractive merger partner might not always be the one with a huge turnover, rather the one with a set of valuable data, as highlighted by Competition Commissioner Margrethe Vestager.[208] A data-related merger is

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[206] ITALIANER, A. *Competition Policy in the Digital Age.* Innsbruck, 2014, p. 19. Available at: <http://ec.europa.eu/competition/speeches/text/sp2014_01_en.pdf>

[207] HAL VARIAN. *Our Secret Sauce.* In: Google Official Blog. 2008. Available at: <https://googleblog.blogspot.sk/2008/02/our-secret-sauce.html>

[208] VESTAGER, M. *Op. cit.* 97

however accompanied by a range of risks related mainly to the concentration of data within the control of few companies, following use of collected data and its potential negative outcomes and distortion of competition. The challenge for competition policy enforcers is to separate cases requiring closer scrutiny from the ones where data ownership and usage is economically beneficial, drives innovation and is competitively harmless.

To assess the implications of data for competition policy, it is vital that competition law and competition authorities are able to capture markets that profoundly rely upon the collection of data. This being said, the essential requirement is that competition authorities properly and thoroughly address potentially anti-competitive practises of companies that might comprise of acquiring data or preventing their competitors from collecting data. To summarise the major challenges for competition law in markets where data collection is crucial, the author closely examined the following:

I. Challenges in defining the relevant market and assessing the degree of market concentration

Firstly, the issue of data-related relevant market determination needs to be clarified. Under accepted market definition tests, requirements for defining a relevant market include the sale and the demand substitutability of products and services. In case data is traded, the existence of potential competition is basically undeniable, and can constitute a market definition. In the absence of sales where data represents purely a key input, none of the General Court, European Court of Justice, or the Commission have ever defined a separate relevant market around data used solely as an input. There are mixed opinions and arguments on whether such market definition should be adopted in the future, but there is no legal support so far. Regarding the market concentration, the dynamic environment of data-related markets provides a relatively low informative value when it comes to market shares and concentration levels, which may be derived primarily from the volatility and inconstancy of such markets. To conclude, under prevailing competition law principles, the relevant market for online services such as social networks, search engines or e-commerce platforms hence cannot take

data as an object since no economic transaction takes place between the providers and users for data, and these do not sell or trade data to third parties.

II. Challenges in determining the market power by assessing the possibility of entry barriers arising out of the economics of data, in particular, the increasing returns to scale and scope combined with networks effects on one hand, and economic properties mitigating competitive concerns of data on the other hand

Secondly, to assess the importance of data in determining market power, competition authorities need to take into consideration the overall characteristics of the big data eco-system and relationships within the markets. Competition Commissioner Vestager proposed the same theory saying that *"... having the right set of data could make it almost impossible for anyone else to keep up. So, we need to be sure that companies which control that sort of data don't use it to stop others from competing."*[209] While examining the possibility of data-related entry barriers, competition authorities should examine the presence of direct and indirect network effects, which may cause the market to tip in favour of a few companies, and the extent of the economies of scale and scope, specifically what is the marginal benefit of holding more data and how significant it is to combine different types of data. In essence, the advantages arising out of the scale and scope of data include improved outputs, greater relevance, and better targeting. These economies can be moreover intensified by network effects, this reinforcing the market power of the company in question.

It is nonetheless reasonable to include the appraisal of basic economic properties of data that conversely mitigate its competitive concerns. Data availability, low cost, and replicability may in some cases decrease potential anti-competitive implications of data. New competitors entering the market are, as a result, unlikely to be at a significant competitive disadvantage when it comes to data collecting and processing. In this regard, it is also important to consider

[209] VESTAGER, M. *Op. cit.* 175

the time depreciation value of data and the extensive multi-homing of users, that both serve to reduce market power. Having said that, the sole collection of data is not sufficient to declare the merger detrimental to the competition. The primary concern lies in the application and use of data; therefore, the Commission needs to conduct a case-by-case analysis and in each case evaluate whether the data concerned is unique enough to create barriers to entry and force the competitors out of the market. Establishing an objective standard applicable would not be sufficient since the value of the data is derived primarily from its subsequent use as analysed above.

III. Challenges in constituting a convincing data-related theory of harm

Thirdly, the Commission has in the past years developed several data-related theories of harm indicating how the merger might harm the competition. The proposed theories were based on the competitive concerns arising out of the combination of merging parties' data collections, the ability, and incentive of the merged entity to foreclose its competitors or the newly merged datasets to strengthen the position of the merging companies.

When it comes to the application of theory to practise, the analysis of the Commission's decisions in data-related mergers provides an informative and constructive overview of the Commission's approach towards competitive concerns of data in relation to mergers and its development throughout the years. The Commission is generally assessing whether merging companies that gain access to a set of data via mergers could constitute the access to a valuable and essential dataset, unlikely to be replicated by competitors, and a source of significant market power.

The Commission recognized the importance of data in *TomTom/Tele Atlas* merger, where it also defined the market for data, more precisely for databases of digital maps, since data in question was truly traded as a product. One of the first instances where the Commission integrated more complex big data considerations into its merger assessments was the *Google/DoubleClick* merger.

The Commission analysed the competitive implications of the combination of data in *Google/DoubleClick, Telefónica UK/Vodafone UK/Everything Everywhere* and *Microsoft/LinkedIn* merger cases. The substance of the analysis was to determine whether post-merger database would constitute an essential input, unmatchable and non-replicable by other competitors. The investigation indeed included assessment of various other circumstances specific to each case. The Commission considered inter alia the nature of data, the tools required to collect such data and the ability of competitors to access data through other sources. Based on these merger decisions, the mere combination of data did not a priori constitute an impediment to effective competition; the access to homogenous substitutes that are readily available was an important factor to consider. The Commission, therefore, dismissed this theory of harm in all three merger cases.

***TomTom/Tele Atlas, Publicis/Omnicom,* and *Microsoft/LinkedIn* were merger cases, in which the Commission predicted the possibility of vertical input foreclosure.** When conducting the competitive assessment of input foreclosure around data, the Commission examined whether post-merger the dataset of the merged entity would have constituted an essential input, and consequently whether the transaction could have led to the foreclosure of other competitors. The investigation focused on both the ability and the incentive of the merged entities to restrict access to valuable data, as well as the overall likely impact on effective competition. In contrast, what furthermore needs to be taken into consideration is also the lack of exclusivity in the collection of data, non-rivalrous nature of data related to multi-homing, and the fact that not all types of data are valuable for all purposes; these factors make the possibility of data-related input foreclosure more unlikely. The Commission did not identify the input foreclosure scenario to take place in any of the above-analysed cases.

Data strengthening the position of the merged entity was the theory of harm investigated in *Facebook/WhatsApp* and *Microsoft/LinkedIn* cases. The Commission examined the impacts of potential data concentration to the extent that it was likely to strengthen the merged entity's position on the market. In both cases, the investigation included analysis of a number of factors, such as the availability and value of data in question,

technical and contractual obstacles preventing such outcome, the situation on the market, including the ability and the incentive of the merging parties. Despite the prominence and the value of these transactions, the evidence gathered during the thorough market investigation revealed that competition concerns related to this theory of harm were unwarranted.

The statements, speeches, and commentaries of the Commission officials evidently indicate the Commission's awareness that competition policy and enforcement need to embrace the particularities of big data and digital economy. From the analysis of the above-mentioned data-related mergers, it can be concluded that the Commission's approach to assessment indicates a significant degree of consistency between different cases. In essence, it is evident that conventional theories of harm can be applied to mergers featuring big data, even though the issues that arose in the reviewed cases were notably similar. Needless to say, the decisions adopted in all the above cases are highly fact- and case-specific and the Commission should, and apparently will assess each future merger case on its own merits. However, from the competition policy perspective, the Commission's decision making is valuable since it provides insights on how the currently applicable competition law principles tackle the novel issues related to big data emerging in the digital economy.

As a concluding remark, the author would like to draw attention to the growing trend of inclusion and reliance on big data in all areas of the economy, which indicates that data-related aspects will feature prominently in the future Commission cases. Due to the continuous development of usage and exploitation of data, competition authorities as well as general the public need to pay a close attention to, and continuously evaluate and update their approach to the matter. Big data is neither inherently good nor bad and it cannot be ignored; its value depends on the industry and the objective and effect of the data-driven strategies.

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BIG DATA AND EU MERGER CONTROL

ABSTRACT

The significance of "big data" as a factor in the competitive assessment of mergers in EU has attracted more and more attention in the past years. Today's digital economy revolves around the Internet and information technologies that together enabled collecting and processing previously unimaginable sets of data, high in volume, velocity, variety and value. Data started to present a valuable and important asset to various businesses, mainly active on online platforms. Consequently, companies may engage in strategic mergers in order to acquire profitable data from one another. The aim of this master thesis is to research and analyse whether big data could result in the increased market power of the newly merged company or could have detrimental effects on other competitors present on the market or the competition itself. The main research question therefore is whether big data in its essence could constitute a competitive concern when it comes to data-related mergers.

This thesis initially clarifies the concept and characteristics of "big data" in general, whilst demonstrating the increasing significance of data used as assets for businesses in the present digital economy. The research then focuses on what role specific features of data could play in various stages of competitive assessments of merger conducted by the European Commission; the research considers both amplifying as well as mitigating competitive effects of data in the context of merger control. The core analysis lies in determining a data-related theory of harm, theoretically and in practise. The primary aim is to establish the coinciding principles, anomalies, consistency of decision-making and the overall approach of the European Commission towards unconventional data-related merger cases. This thesis analyses six major mergers, provides a critical assessment of identified theories of harm with reference to big data and provides final conclusion on big data in context of EU merger control.

KEYWORDS

Competition law, big data, merger control

BIG DATA A KONTROLA SPOJOVÁNÍ PODNIKŮ V EU

ABSTRAKT

V uplynulých letech začala být stále větší pozornost věnována konceptu „big data“ jako jednoho z faktorů v rámci soutěžního posouzení fúzí v EU. Dnešní digitální ekonomika je postavena na internetu a informačních technologiích, které společně umožnily shromažďovat a zpracovávat dosud nepředstavitelné sady dat, charakteristické velkými objemy, rychlostí, rozmanitostí a hodnotou. Data začaly představovat cenný a důležitý přínos pro různé podniky, které působí převážně na on-line platformách. V důsledku toho se společnosti mohou zapojit do strategických fúzí za účelem získání vzájemně výhodných dat. Cílem této diplomové práce je prozkoumat a analyzovat, zda by „big data“ mohly vést ke zvýšení tržní síly nově sloučené společnosti, nebo by mohly mít škodlivé účinky na ostatní konkurenty přítomné na trhu nebo na soutěž samotnou. Hlavní výzkumná otázka proto spočívá v tom, zda by „big data“ ze své podstaty mohly z pohledu soutěžního práva představovat problém, pokud jde o fúze, při kterých dochází k spojení velkých zásob dat.

Tato práce zprvu objasňuje koncept a charakteristiku "big data" obecně, a současně poukazuje na rostoucí význam dat užívaných jako aktiva podniků v současné digitální ekonomice. Výzkum se pak zaměřuje na to, jakou roli by specifické rysy dat mohly hrát v různých fázích soutěžního posouzení fúzí prováděných Evropskou komisí; výzkum se zaměřuje na posílení a rovněž i zmírnění soutěžních efektů dat v souvislosti s kontrolou fúzí. Základná analýza spočívá v určení takové teorie újmy, která souvisí s daty, a to teoreticky i prakticky. Hlavním cílem je vymezit shodující se principy, anomálie, konzistenci v rozhodování a celkový přístup Evropské komise k nekonvenčním případům fúzí souvisejících s daty. Tato práce analyzuje šest hlavních fúzí, kriticky analyzuje identifikované teorie újmy ve vztahu k „big data“, a nabízí konečný závěr o „big data“ v souvislosti s kontrolou fúzí v EU.

KLÍČOVÁ SLOVA

Soutěžní právo, big data, kontrola spojování podniků, kontrola fúzí