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Access to big data under the "refusal to supply" case-law of the Court of Justice of the EU

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Tomáš Ochodek

In Prague on / V Praze dne ……..

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1. Introduction

1.1. Background

As the title of *The Economist* article from 2017 put it, the world's most valuable resource might no longer be oil, but rather data.[1] The so-called *online platforms* managed to largely change the modern economy by being able to collect, analyse and use large amounts of data, becoming the most valuable and powerful companies in the world in the process.[2] The position of these large players, however, raised a number of concerns in some areas, competition law in particular.[3]

This notion of the so-called "new economy"[4] entails two elements: *online platforms* and *big data*. Regarding the former element, there is no universal understanding of what exactly constitutes an online platform.[5] In fact, in a 2016 communication, the Commission admitted that platforms come in "various shapes and sizes"[6] and in its 2018 proposal for the so-called Platform-to-Business Regulation it similarly refrained from presenting a general understanding of a platform, working instead with the more limited term of "online intermediation services".[7]

In spite of the lack of a general definition, several creative ways to describe the reality of platforms have emerged recently. In particular, Stucke and Grunes introduced the term *data-opoly*.[8] Stucke explains the meaning of data-opoly with an emphasis on the *"control [of] a key platform which, like a coral reef, attracts to its ecosystem users, sellers, advertisers, software developers,*

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[1] THE ECONOMIST. The world's most valuable resource is no longer oil, but data. *The Economist* [online]. The Economist Newspaper Limited, 2017 [cit. 2019-06-29]. Available at: https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data.

[2] EUROPEAN COMMISSION. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Online Platforms and the Digital Single Market: Opportunities and Challenges for Europe*. Brussels, 25.5.2016, COM(2016) 288 final, p. 2-3. Also available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0288&from=EN [accessed 2019-06-25].

[3] See generally: STUCKE, Maurice E. Here Are All the Reasons It's a Bad Idea to Let a Few Tech Companies Monopolize Our Data. *Harvard Business Review* [online]. Harvard Business Publishing, 2018 [cit. 2018-07-02]. Available at: https://hbr.org/2018/03/here-are-all-the-reasons-its-a-bad-idea-to-let-a-few-tech-companies-monopolize-our-data.

[4] See JONES, Alison and Brenda SUFRIN. *EU competition law: text, cases, and materials*. Sixth edition. Oxford: Oxford University Press, 2016, p. 48-49, where the authors characterize the new economy both by relevant fields and by particular features (e.g. electronic communications, software, search engines etc. for the former and reliance on IP rights, need for the complementarity of products, services and platforms as well as in some cases the importance of network effects for the latter).

[5] Ibid.

[6] EUROPEAN COMMISSION, op. cit. 2, p. 2.

[7] EUROPEAN COMMISSION. *Proposal for a Regulation of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services*. Brussels, 26.4.2018 COM(2018) 238 final. Also available at: http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=51803 [accessed 2019-06-25]. In particular, while the explanatory memorandum often works with the notion of online platforms (see e.g. p. 1 or p. 3 of the proposal), the proposal subsequently introduces the term "online intermediation service" as well as the separate term "online search engine" in Arts 1 and 2 (p. 18-19 of the proposal).

[8] STUCKE, Maurice E. and Allen P. GRUNES. *Big data and competition policy*. Oxford, United Kingdom: Oxford University Press, 2016, p. 277.

apps, and accessory makers."[9] Each major player in the new economy thus *controls* an important platform (an online marketplace in case of Amazon, a social network in case of Facebook or mobile phone operating systems in case of Apple's iOS and Google's Android).[10]

When it comes to the latter element of the new economy – *big data* – the situation is not significantly clearer. While the role of the ability to *"organise new forms of participation or conducting business based on collecting, processing, and editing large amounts of data […]"* in the rise of online platforms is without question,[11] *big data,* nowadays a ubiquitous term, lacks a widely accepted definition as well.

One approach in describing big data uses the "Four Vs" characterization: big data is thus delineated by the attributes of *volume, velocity* of collection, use and spreading, *variety* of information it can provide (e.g. about an individual) and lastly the *value* of such data In contrast to "other" data, i.e. data that falls outside of the term, but which can nonetheless be assessed according to these attributes, big data contains such volume, variety etc. of information that it allows for qualitatively different conclusions than with "standard" data. Consequently, while it has been possible for traditional brick-and-mortar businesses to collect data (e.g. on their customers or sales) for decades, big data is connected to the possibility to gather data at a much faster pace, much lower cost and with many more uses than before.[12]

Other characterizations of data are also possible, for instance on the basis of how structured data is, what kind of information it provides or how is it gathered. For instance, it is also possible to differentiate between data according to the method through which it is obtained on an individual level – from data voluntarily and expressly provided by individuals (e.g. through a questionnaire), through data which can be observed (such as location data collected by mobile phones), to data that has to be derived or inferred through e.g. the use of algorithms and other more sophisticated methods of data collection and in particular data analysis.[13]

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[9] STUCKE, op. cit. 3.

[10] Ibid.

[11] EUROPEAN COMMISSION, op. cit. 2, p. 2.

[12] See e.g. STUCKE, GRUNES, op. cit. 8, p. 16; see also GRAEF, Inge. *EU competition law, data protection and online platforms: data as essential facility*. Alphen aan den Rijn, The Netherlands: Kluwer Law International B.V., 2016. International competition law series, v.68, p. 126-128, using a slightly altered structure, adding *veracity* of data to the mix.

[13] BUNDESKARTELLAMT and AUTHORITÉ DE LA CONCURRENCE. *Competition Law and Data*. 2016, p. 5-8. Also available at: http://www.autoritedelaconcurrence.fr/doc/reportcompetitionlawanddatafinal.pdf, [accessed 2019-06-05], Further cited as "BKA/ADC". See also EUROPEAN COMMISSION. Competition Policy for the digital era [online]. European Commission, 2019 [cit. 2019-07-07], p. 24-25. Available at: http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

Nonetheless, the key takeaway from the above is that *big data,* through the scale and scope of its collection and use, presents completely new possibilities for businesses. Big data can enable the improvement of existing products in a way that would not otherwise be possible; for instance, Google can improve the algorithms behind its search engine with the use of every search query made by any of the billions of its users. It can also enable the discovery of information that would be much more expensive and time-consuming to obtain, if at all; for example, location data of drivers and commuters obtained from mobile phones and other "smart" technology equipment can show traffic congestion at a quality (including being up-to-date) previously unachievable. The use of big data thus not only enables the analysis of (quantitatively) more data, but crucially makes it possible to arrive at (qualitatively) novel conclusions.[14]

A recurring question in the *practice* of working with big data is if, and to what extent, can data be really characterised as the "new oil". The problem, especially with large volumes of data, is that data alone does not present a competitive advantage; it is only when data is actually used to solve a problem that data and its analysis become useful.[15] One early opinion went as far as claiming that the real value rests in the algorithms used to process data, giving thus less importance to data.[16] Nonetheless, the debate has recently shifted "in favour" of data and the view that analytical tools, including the use of so-called machine-learning methods, have limited relevance when it comes to building a strong and lasting advantage over competitors; one opinion of a leading industry expert is particularly telling: *"[a]mong leading AI teams, many can likely replicate others' software in, at most, 1–2 years."*[17] Furthermore, recent reports point to the conclusion that leading companies are increasingly looking at acquisitions of datasets that are not always public,[18] pointing to the possible conclusion that *"[d]ata is the defensible barrier, not algorithms."*[19]

Largely due to the phenomena known as *network effects*, which will be explained in Chapter 2, online platforms act as "hubs" which attract an ever-increasing number of users and with it, the

[14] BKA/ADC, op. cit. 13, p. 7, 10-11.

[15] GOLDFEIN, Jocelyn and Ivy NGUYEN. Data is not the new oil. *Techcrunch.com* [online]. Techcrunch.com, 2018 [cit. 2018-07-05]. Available at: https://techcrunch.com/2018/03/27/data-is-not-the-new-oil/.

[16] In this particular opinion, the data-oil analogy was also probably put to perfection, as its author claims: *"[b]ig data is the oil of the 21st century. But for all of its value, data is inherently dumb. It doesn't actually* do *anything unless you know how to use it. Oil is useless thick goop until it's refined into fuel."* See SONDERGAARD, Peter. Big Data Fades to the Algorithm Economy. *Forbes.com* [online]. Forbes Media LLC, 2015 [cit. 2018-07-05]. Available at: https://www.forbes.com/sites/gartnergroup/2015/08/14/big-data-fades-to-the-algorithm-economy/.

[17] NG, Andrew. What Artificial Intelligence Can and Can't Do Right Now. *Harvard Business Review* [online]. Harvard Business Publishing, 2016 [cit. 2018-07-05]. Available at: https://hbr.org/2016/11/what-artificial-intelligence-can-and-cant-do-right-now. Ng was at that time the Chief Scientist for Baidu, the Chinese search engine company.

[18] LOHR, Steve. Data Could Be the Next Tech Hot Button for Regulators. *The New York Times* [online]. The New York Times, 2017 [cit. 2018-07-05]. Available at: https://www.nytimes.com/2017/01/08/technology/data-regulators-google-facebook-monopoly.html; One particular piece of information in this respect stands out - according to IBM, 70% of data is in *private* databases, rather than on publicly accessible websites.

[19] Stucke and Grunes also raise similar thoughts, albeit not so expressly, see STUCKE, GRUNES, op. cit. 8, p. 201.

flow of data available to platforms for analysis and further use also increases. In practice, this also led to the concentration of different activities, including the data obtained from such actions, with only a small number of platforms; in certain cases, with only one platform being the almost undisputed leader in providing a certain kind of service (e.g. Google in search engines or Amazon in online marketplaces). This leads to the possible concentration of big data with only a small number of companies and the difficulty for outside competitors to access, use such data and compete against these incumbents.

As was noted at the beginning of this chapter, the position of companies that control the largest online platforms created several concerns. With regard to competition, in 2016 the French and German competition authorities jointly identified several types of these when it comes to the accumulation of data. Data thus may act as a source of market power or increase transparency in a market in a way that creates incentives for collusion;[20] furthermore, to the extent data presents a competitive advantage, there is a risk of anticompetitive conduct such as exclusionary practices on part of a dominant platform.[21] These concerns were subsequently confirmed by other authors.[22]

In summary, the importance of data in the new economy most likely cannot be overstated; while it enabled the rise of a number of key online platforms, it also created a number of concerns, including those connected to competition law. The next subchapter thus explains how this situation is reflected in this thesis.

1.2. Research Question

The thesis aims to analyse the applicability of the so-called "refusal to supply" case-law of the Court of Justice on big data as an input which is vital for competing on a number of markets but which, due to a number of factors outlined further in the thesis, may not always be available to undertakings that wish to participate in such markets. The "refusal to supply" case-law presents one possible legal method, an instrument specific to EU competition law, through which it could be possible to access big data held by an online platform.

The key question in such an analysis is the way EU competition law regulates access to accumulated big data within the control of an online platform, which can be in the position of a

[20] EZRACHI, Ariel and Maurice E. STUCKE. *Systematic and Unchallenged Algorithmic Tacit Collusion* [online]. University of Tennessee Legal Studies Research Paper No. 366, 2018 [cit. 2018-12-10]. Available at SSRN: https://ssrn.com/abstract=3282235.

[21] BKA/ADC, op. cit. 13, p. 11-20. It should be noted that the report cites more types of anticompetitive conduct under the last category - including mergers, price discrimination and exploitative conduct regarding privacy of users.

[22] See e.g. STUCKE, op. cit. 3, or HOLKOVÁ LUBYOVÁ, Linda. Data as a Source of Market Power. *Antitrust.* 2017 **9**(3), p. 86-88.

dominant undertaking, by another undertaking. In terms of refusals to supply, which can be prohibited as abuse of dominant position under Art. 102 TFEU, such an assessment requires the discussion of each step necessary to arrive at a finding of prohibited behaviour, from the definition of relevant markets to the application of the conditions that must be fulfilled in order to determine an illegal refusal to supply.

Firstly, the thesis will explain the necessary background for further analysis in the chapters dealing with the accumulation of data in online platforms and the development and current understanding of refusal to supply in EU law. The thesis is subsequently structured according to the main steps that need to be made to arrive at a finding of a violation of Art. 102 TFEU through a refusal to supply big data; within each relevant chapter (i.e. chapters dealing with the notions of relevant markets, establishment of dominant position or the application of the conditions defining a refusal to supply), the following will be presented.

Firstly, the current state of the law will be outlined in order to point out the standards, according to which competition analysis is usually conducted. Secondly, the applicability of key concepts (from the notions of relevant markets or dominant position to the indispensability of input) to *data* as the input potentially sought by undertakings will be discussed with emphasis on the modifications that need to be made in order to properly account for the specificities of *big data*. Thirdly, even though any particular situation where access to big data is sought will have to be assessed on a case-by-case basis, it will be suggested what impact could the particular steps in competition analysis have on the requests to access different kinds of data or in various markets. In the end, a brief outline of the conditions under which access to data could be provided in practice will be provided.

The analysis outlined above is based on a number of main sources. Firstly, it is academic writing dedicated to the issues of multi-sided markets, online platforms and the use of data and the reflection of these phenomena in competition analysis. Furthermore, materials prepared by competition authorities on these questions are also used. The thesis also discusses judgments of the Court of Justice of the EU in the area of EU competition law and the decision-making practice of the European Commission, with particular focus on decisions concerning online platforms, online businesses in general or decisions where the undertakings in question collected and analysed data, including big data.

2. Accumulation of Data in Online Platforms

The purpose of this chapter is to provide background for further analysis and explain the key factors that lead to the rise of online platforms into their current positions. For this reason, Chapter 2 outlines two key causes that are most often associated with the strength of online platforms and their ability to accumulate data; their practical influence is subsequently discussed in later chapters. Consequently, this chapter shall deal firstly (subchapter 2.1.) with the notion of the so-called *network effects* and secondly (subchapter 2.2.) with the concept of *multi-sidedness* of markets. Finally, developing the outline provided in Chapter 1, the concerns connected to the accumulation of data in online platforms are discussed (subchapter 2.3.).[23]

2.1. Network Effects

The first factor discussed in this chapter is the idea of *network effects*. However, over the years, a number of different categories of network effects have been described and the notion became the subject of rich discussion. In order to cover such an issue with clarity, this subchapter will focus on two broad categories of these effects: "traditional" network effects and so-called "data-driven" network effects. The first part of this subchapter (2.1.1.) will deal with the former category, the relevance of which has been universally accepted. This part will also introduce a further distinction between *direct* and *indirect* network effects in their traditional meaning. The second part of this subchapter (2.1.2.) will explain the influence of big data on the effectiveness of network effects. It will thus discuss, as suggested above, the category of data-driven network effects, which, in contrast to the former type of network effects, is a relatively novel concept. Furthermore, the issue of network effects is further discussed in subchapter 2.2. in connection to the notion of *multi-sidedness*.

[23] At the outset the author wishes to note that both in academic writing and legal practice, online platforms are subject to an almost overwhelming amount of descriptions and analyses; often, the same characteristics are merely described by different terms or the concepts used to define online platforms overlap in substance. For instance, one feature of online platforms that is not explicitly discussed in detail below is the influence of the so-called *supply-side economies of scale*. In most cases where online platforms dominate a certain market, there are substantial initial investments that need to be expended in order to not only build up a critical position on a given market, but also to enter such a market in the first place (e.g. investment in research and development required to create a functional search engine algorithm); however, once these steps are taken, the cost of further developing the platforms' products and services (e.g. if we remain with the example of search engines, the cost of making one additional search query and producing one additional search result) is quite limited and online platforms can benefit from such economies of scale. See GRAEF, op. cit. 12, p. 32-33.

2.1.1. "Traditional" Network Effects

As noted above, "traditional" network effects are the focus of this part of the subchapter; in terms of further analysis, they provide the necessary basis for the discussion of any modifications, such as the "data-driven" type of effects. Furthermore, it was the "traditional" category that developed first in time and accordingly is the most settled, even though more precise descriptions of network effects with respect to online platforms are provided further in the thesis; nonetheless, even in their "classic" form, these effects have immense influence on the operation of some online platforms, as explained below.

The idea of *network effects* was originally confined to discussions in economic circles, where the notion caught attention and traction mostly in the 1980s.[24] Over time, the concept found its way into legal reasoning; a range of areas where network effects could be used in legal argumentation was identified by e.g. the American authors Lemley and McGowan: corporate law, intellectual property law, standard-setting, Internet governance, telecommunications regulation and, most importantly, antitrust law.[25] These authors proposed that the existence of network effects required a profound reflection in some areas of law, in particular on the question whether and to what extent should one think differently about antitrust law when it seeks to regulate the behaviour on markets where network effects are present.[26] As they suggested, the existence of network effects could be used both as an argument *for* invoking antitrust law in a given case or, conversely, for *refraining from* invoking the law altogether.[27]

Nowadays, in EU law and policy, network effects are increasingly often mentioned in connection to the rise of online platforms. According to the European Commission, one of the important and specific characteristics of online platforms is precisely that *"they benefit from 'network effects', where, broadly speaking, the value of the service increases with the number of users[.]"*[28]

As suggested above, the discussion of network effects lead over time to further classification of different types of such factors. The key distinction in this respect is between *direct* and *indirect* network effects.

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[24] KATZ, Michael L. and Carl SHAPIRO. Network Externalities, Competition, and Compatibility. *The American Economic Review*. 1985, **75** (3), p. 424-440; FARRELL, Joseph and Garth SALONER. Standardization, Compatibility, and Innovation. *The RAND Journal of Economics*. 1985, **16** (1), p. 70-83; FARRELL, Joseph and Paul KLEMPERER. Chapter 31: Coordination and Lock-In: Competition with Switching Costs and Network Effects. In: ARMSTRONG, Mark and Robert PORTER, eds. *Handbook of Industrial Organization Volume 3*. Elsevier, 2007, p. 1967-2072.

[25] LEMLEY, Mark A. and David MCGOWAN. Legal Implications of Network Economic Effects. *California Law Review*. 1998, **86**(3), p. 481-612.

[26] LEMLEY, MCGOWAN, op. cit. 25, p. 485.

[27] Ibid., p. 512-513.

[28] EUROPEAN COMMISSION, op. cit. 2, p. 2.

A classic example of a product that benefits from *direct* network effects is a telephone network: the more people use the same telephone network, the greater the benefit for the individual as he or she may reach more people within the same network. [29] According to Katz and Shapiro, who put forward one of the most respected analyses of network effects, direct network effects can be summarised by the rule that: *"the utility that a user derives from consumption of the good increases with the number of other agents consuming the good."*[30]

Although a different kind of network effects is most often emphasised when it comes to online platforms, there are clear examples of *direct* network effects in such a context: as is the case of a telephone network, online communication networks – or more fittingly communication applications (or even embedded communication functions in certain social networking websites like Facebook) – are one such example. By extension, social networking websites in themselves are examples of direct network effects coming into play; the more people (and the more of one's friends, relatives and acquaintances) join a certain social networking service, the more value can any individual user derive from his or her own participation in that network.

The verbal (but not factual) opposite of *direct* network effects comes in the form of *indirect* network effects.[31] While direct network effects are built upon the use of a single product (in a given case), indirect network effects arise from the connection between the use of a "primary" product and the availability of another, "secondary" or "complementary", product.[32] The classic brick-and-mortar example of indirect network effects is the purchase of a razor and the availability and affordability of razorblades for that type of razor, or even more broadly, relationship between any original product and the supply of spare or repair parts. Another illustration is generally the relationship between e.g. personal computer hardware and software: the more people use a certain type of hardware, the more software will be developed to be used for this type of hardware. A similar representation of indirect network effects can be also seen in the case of computer or mobile operating systems: more applications and programs will be available for the widest-adopted systems.[33]

In practice, indirect network effects have also value for online platforms; on the other hand, their key manifestation in such environments is closely connected to the issue of *multi-sidedness,* which is covered in subchapter 2.2. along with further discussion of this type of effects.

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[29] See JONES, SUFRIN, op. cit. 4 p. 48-49, or similarly WHISH, Richard and David BAILEY. *Competition law*. Ninth edition. Oxford, United Kingdom: Oxford University Press, 2018, p. 11-12; see also GRAEF, op. cit. 12, p. 21-22.

[30] KATZ, SHAPIRO, op. cit. 24, p. 424.

[31] JONES, SUFRIN, op. cit. 4, p. 48-49, WHISH, BAILEY, op. cit. 29, p. 11-12, GRAEF, op. cit. 12, p. 21-22.

[32] The notion of primary and complementary products is introduced by the author for clarity and is not usually singled out in the literature in this way.

[33] See FARRELL, SALONER, op. cit. 24, p.70-71.

The outline above in this part of subchapter 2.1. provided the necessary basis for further understanding of network effects. As the next part shows, however, when considering the impact of big data in the new economy, it is also necessary to reflect on its impact on the existing, "traditional" network effects.

2.1.2. "Data-Driven" Network Effects

The second broad category of network effects concerns the so-called "data-driven" network effects. As discussed below, even though their "inclusion" in the accepted categorisation of network effects is not certain, they present an important view on the role of big data with respect to online platforms.

Given the importance of data in the new economy, and, as the German and French competition authorities held: *"the technological changes of the digital economy have revolutionized the possibilities to collect, process and commercially use data in almost every business sector[,]"*[34] there have been attempts to describe the notion of network effects in connection to big data within a specific category. While the ways in which collection and analysis of data can help companies are well known and generally well-described – these can range from improving the product provided, better targeting of potential customers to opening new business opportunities[35] – Stucke and Grunes view these improvements through the lens of a special type of network effects, giving thus rise to the idea of "data network effects" or "data-driven network effects".[36] This way, a new layer of examples can be added to those already described above, with the distinctive detail that various properties of big data help distinguish data-driven network effects from the "traditional" (i.e. not data-driven) network effects discussed in the previous part of this subchapter.[37]

It is important, however, to note that, in terms of existing academic writing on network effects, Stucke and Grunes stand out with an approach describing specific data-related *types* of network effects.[38] Other authors express their views on the use of scale and scope of data purely or mainly in terms of the technical nature of the use of data (i.e. by referring to so-called machine-learning)[39] or through the concept of special "learning effects" on production where learning about e.g. previously recorded search queries may enable lowering the cost of producing subsequent and higher-quality

[34] BKA/ADC, op. cit. 13, p. 9.
[35] See e.g. BKA/ADC, op. cit. 13, p. 9-11.
[36] STUCKE, GRUNES, op. cit. 8, p. 170, 186, 189.
[37] Stucke and Grunes use the distinction between "traditional" and "non-traditional" in STUCKE, GRUNES, op. cit. 8, p. 164.
[38] Compare RUBINFELD, Daniel L. and Michal S. GAL. Access Barriers to Big Data. *Arizona Law Review.* 2017, **59**(2), p. 355-356.
[39] GRAEF, op. cit. 12, p. 11.

search results.[40] It could thus validly be claimed that data-driven network effects are actually not a type of network effects *stricto sensu*, as they have been described in previous literature. The author proposes that without the need to determine to what degree is the thought of data-driven network effects true to its name, it is useful to understand them at the very least as factors that can greatly enhance the effectiveness of already existing "traditional" direct or indirect network effects and, in the process, the product or service provided by an online platform.

Stucke and Grunes thus put forward several types of data-driven network effects, or, as described above, factors enhancing existing network effects, two of which it is pertinent to describe here. First, they describe a type of effect following from the *scale* of data, and secondly, one stemming from the *scope* of data.[41]

Regarding the first type – an effect resulting from the *scale* of data – the thinking goes as follows: unlike in a telephone network, in which individual users benefit from the overall increase in participants (where a telephone network user has more people to possibly contact), the benefit from a surge in the usage of a certain product or service is slightly less visible. The more customers adopt a certain service, the *more data in total* is given to the service operator, who can in turn utilize the larger amount of data available to improve the service.[42] Stucke and Grunes mention several recognised examples of this type of data-driven network effect: one of them is e.g. the Waze navigation application, which collects data from drivers who commute with the "app" switched on and therefore in turn provide large amounts of traffic data to its servers; the data is subsequently analysed and provided to other drivers in the form of information on e.g. traffic congestion;[43] another, more common, example is search engines: whether people use Google or DuckDuckGo, the more users search through a certain engine, the more queries does the provider have and the more individual cases can be processed by the engine's algorithms to better pair search queries and results in the future.[44]

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[40] ARGENTON, Cédric and Jens PRÜFER. Search Engine Competition with Network Externalities. *Journal of Competition Law & Economics*. 2012, **8**(1), p. 79-81.

[41] Compare STUCKE, GRUNES, op. cit. 8, p. 170, 186.

[42] STUCKE, GRUNES, op. cit. 8, p. 170; See also the example of Microsoft's argumentation in the lead up to the merger decision in *Microsoft/Yahoo* decision (discussed also in subsequent chapters) in GRAEF, op. cit. 12, p. 37-38.

[43] STUCKE, GRUNES, op. cit. 8, p. 171; Waze was subsequently acquired by Google. In fact, it is often suggested that a number of important mergers in the past years have been driven by the aim of increasing the scope of data available to a platform, see RUBINFELD, GAL, op. cit. 38, p. 352.

[44] PETROPOULOUS, Georgios, Search engines, big data and network effects. In: *Breugel.org Blog* [online]. Breugel, 2016 [cit. 2019-06-02]. Available at: http://bruegel.org/2016/11/search-engines-big-data-and-network-effects/; STUCKE, GRUNES, op. cit. 8, p. 173; similarly, NUCCIO, Massimiliano and Marco GUERZONI. Big data: Hell or heaven? Digital platforms and market power in the data-driven economy. *Competition and Change.* 2019, **23**(3), p.318-320 and LERNER, Andres V. *The Role of 'Big Data' in Online Platform Competition* [online]. 2014 [cit. 2019-06-09], p. 10-11. Available at SSRN: https://ssrn.com/abstract=2482780, strongly mentioning various "recommending" functions on a number of online platforms – e.g. from information on items that other users often bought together with the one

The second type of effect proposed by Stucke and Grunes arises from the *scope* of data; going back to the "four Vs" of big data mentioned in Chapter 1, this concept reflects best the *variety* of data at an online platform's disposal. In this case, some examples from above can be reused. Google's algorithms do not benefit only from the sheer scale of search queries processed by its servers every moment, but also from the ability to access information about a user's activity across the entire portfolio of applications and services offered by the company, i.e. the texts of Gmail.com users' emails, the types of Youtube.com videos people watch and so on. These can in turn be used to provide *more personalised search results* to users.[45] The same goes e.g. for any "digital assistant" application that can use a larger scope of data than just that obtained from communication. Consequently, such an "assistant" can also provide more personalised information (for instance, when a user is looking for a restaurant, the larger variety of available data can, through the addition of e.g. location data or an individual's income bracket, improve the suggestion made by such an application).[46] Similarly, the access to a wider scope of data can help an online platform to better respond to current events (e.g. when a well-known person passes away, a search engine can stop sending users searching for his or her name to general pages about that person, but instead changes the search results to put recent reports to the top of the result page).[47]

The importance of network effects (including data-driven effects) is, especially in relation to online platforms, sometimes dismissed, most often with reference to other factors that influence the success of certain businesses over others.[48] The author nonetheless argues that while these effects may not in themselves be determinative of an online platform's success (and such a proposition is not made by the author), they need to be recognised, on the basis of the explanation provided in this subchapter, as one of the most important factors leading to the strong position of certain online platforms. In particular, this subchapter demonstrated that either traditionally defined or data-driven effects are clearly beneficial to online platforms such as Facebook (as a representative of social networking services) and Google (as an illustration of a search engine).

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viewed by a customer on Amazon.com to personalization of news services and recommendation of articles with e.g. similar topics.

[45] STUCKE, GRUNES, op. cit. 8, p. 188-189.

[46] Ibid., p. 187.

[47] GRAEF, op. cit. 12, p. 39; although Graef does not use the language of data-driven network effects, this example corresponds well to the second effect presented by Stucke and Grunes. See also RUBINFELD, GAL, op. cit. 38, p. 351 and the authors' discussion of temporal barriers to access to data.

[48] TUCKER, Catherine, Why Network Effects Matter Less Than They Used To. *Harvard Business Review* [online]. Harvard Business Publishing, 2018 [cit. 2019-06-09]. Available at: https://hbr.org/2018/06/why-network-effects-matter-less-than-they-used-to, or generally LERNER, op. cit. 44, p. 19.

2.2. Multi-Sidedness

The second reason why online platforms have managed to attain such powerful positions is that they managed to use the so-called *multi-sided* nature of certain markets or, in other words, the possibility to establish a *multi-sided* business.[49] The first part of this subchapter will deal with the notion of *multi-sidedness* in general (2.2.1.), while the second part provides a discussion on the connection between the concepts of multi-sidedness and network effects (2.2.2.).

2.2.1. Multi-Sidedness in General

According to Tirole and Rochet's paper in which they most likely introduced the notion of a *two-sided* market, *"many if not most markets with network externalities are characterized by the presence of two distinct sides whose ultimate benefit stems from interacting through a common platform."*[50] In essence, multi-sided markets can be described as markets that involve two (or theoretically more, thus warranting the prefix "multi-") sets of customers, who effectively need each other. At the very least, customers from one group value the service provided by a business – a platform – placed in the middle of these two groups *more* if the other group of customers also uses the services, albeit not necessarily of the same kind, of such a business.[51]

Multi-sided markets carry an important economic characteristic: because of the existence of more sides of the market (i.e. more groups of customers who mutually benefit from each other's presence therein), a so-called positive externality is created; however, individuals are usually not able to "internalize" or take account of these externalities in their decision-making.[52] For instance, both retailers who rent space in a department store and the customers who visit such a store and shop there benefit from each other's presence; one group has access to large numbers of consumers while consumers have access to a store with a number of retailers. Nonetheless, the customers do not take into account the fact that by visiting, they increase the attractiveness of the store for retailers.[53]

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[49] For clarity, the author is going to preferably use the expression of a multi-sided "market", but it should also be noted that Graef makes a distinction between the use of the term "multi-sided markets" and the fact that certain online platforms act as "multi-sided businesses"; see GRAEF, op. cit. 12, p. 19.

[50] ROCHET, Jean-Charles and Jean TIROLE. Platform Competition in Two-Sided Markets. *Journal of the European Economic Association.* 2003, **1**(4), p. 990.

[51] EVANS, David S. and Richard SHMALENSEE. The Industrial Organization of Markets with Two-Sided Platforms. *Competition Policy International.* 2007, **3**(1), p. 152.

[52] EVANS, SCHMALENSEE, op. cit. 51, p. 154.

[53] Similarly, in another (heavily simplified) brick and mortar example, a nightclub might be charging different entrance fees to men and women in order to increase the number of persons of certain sex and thus make the club attractive to the members of the other; again, the visitors do not take into account the effect their entry has on the other side of the market. See EVANS, David S. The Antitrust Economics of Two-Sided Markets. *Yale Journal on Regulation.* 2003, **20**(3), p. 332-333, 376-377. An example to the contrary – i.e. of a market where the customer is able to internalise a

In practice, the operation of a platform that occupies the place between two groups of customers – two sides of a market – requires that the platform operator thinks not only about the *price level* that it is going to adopt, but additionally and mostly about the *price structure*. Determination of the price structure, i.e. how much to charge one group and how much to charge another, has one crucial objective: to get "both sides" of the market on board and take advantage of the multi-sided nature of certain markets.[54] The platform thus acts as a matchmaker of sorts and importantly, becomes the one player in a multi-sided market who *is* able to take account of the characteristics of such markets and the effects that may arise when it manages to take advantage of it. This is reflected in many successful online platforms which seemingly offer their services to customers for free and finance their operation through the monetisation of the other side of a multi-sided market.[55]

As is the case with the idea of network effects, multi-sidedness is not a concept that would be universally understood in the same way; for instance, there can be at least three *types* of definitions of multi-sided markets based on different elements.[56] Furthermore, as Graef puts it, in practice and especially in the case of competition analysis, it is much more important to look at the multi-sided nature of a market or a business on a case-by-case basis rather than to look for a universal, all-encompassing understanding of the impact operating in a multi-sided market has on a platform.[57] Nonetheless, the purpose of this subchapter is not to provide an exhausting terminology on multi-sidedness, but to provide a presentation of the (economic) reality of the operation of online platforms.

Multi-sided markets exist in two main settings. In addition to the examples above, the older, classical and mostly brick-and-mortar illustrations involve publishers (connecting readers and authors), travel services (connecting travellers and travel-related businesses), print media and

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positive externality – is the buyer of a razor who is claimed to be able to internalize, to take account of, the impact of the purchase and especially take into account the price of a razorblade in the initial purchase. See ROCHET, TIROLE, op. cit. 50, p. 994.

[54] ROCHET, Jean Charles and Jean TIROLE. Two-Sided Markets: A Progress Report. *The RAND Journal of Economics*. 2006, **37**(3), p. 665; This also implicitly determines which side of the market is the platform going to make most of its money on – Tirole and Rochet point to video game platforms who treated players as "loss leaders" and made money from charging software developers, while makers of operating systems chose the opposite path and made money on selling to clients-customers, while software developers were their "loss leaders"; see ROCHET, TIROLE, op. cit. 50, p. 990-992.

[55] Such an approach has raised a number of reflections, including both the examination of its benefits and flaws to consumers and competition in general, but also attempts to provide the first assessments of personal data as consideration in contract law. See EDELMAN, Benjamin and Damien GERADIN. *An Introduction to the Competition Law and Economics of "Free"* [online]. CPI Antitrust Chronicle, September 2018, 2018 [cit. 2019-06-15], p. 4-7. Available at: https://www.competitionpolicyinternational.com/wp-content/uploads/2018/09/CPI-Edelman-Geradin.pdf, and LANGHANKE, Carmen, and Martin SCHMIDT-KESSEL. Consumer data as consideration. *Journal of European Consumer and Market Law*. 2015, **4**(6), p. 221-223.

[56] AUER, Dirk and Nicholas PETIT. Two-Sided Markets and the Challenge of Turning Economic Theory into Antitrust Policy. *The Antitrust Bulletin*. 2015, **60**(4), p. 434.

[57] Furthermore, she claims that the practical appreciation of multi-sidedness is influenced by the *degree* to which the multi-sided nature of a business is determinative in a given competition issue. See GRAEF, op. cit. 12, p. 78.

"yellow-page" directories (connecting advertisers and readers), as well as payment-related services (e.g. Diners Club).[58]

Online platforms of various kind (from search engines or social networking sites to online marketplaces etc.) then provide the other group of examples. Besides social networking websites and search engines, which attract consumers to their key products while also attracting advertisers to the possibility to reach these users, the latter category can also be described on the example of online marketplaces, such as Amazon.com (connecting buyers and sellers) or other platforms like Uber or Airbnb.[59]

Crucially, the position of these companies is different from the former group in that precisely the "move" online enables them to benefit from the possibility to connect, almost instantly and at a cost far lower than with brick-and-mortar businesses, much larger amounts of people or even people it would not be possible to connect outside such an environment. Consequently, this is precisely why the Internet enabled the creation of social networks that attracted billions of people or the development of online businesses that disrupted the *status quo* in many existing fields (e.g. as is the case with Amazon.com and its influence on retail sales). In the process, while, as mentioned above, there are no absolute barriers to collecting data for brick-and-mortar businesses, it is arguably more probable that it is in the online environment that collection and analysis of data occur on a scale that enables the creation and subsequent use of big data. What the discussion above shows is that multi-sidedness is a concept long recognised in theory and, even more importantly, widely taken advantage of in practice across various business environments. At the same time, however, it is necessary to understand the "inner workings" of such platforms, because the effects that come into play therein are immensely important for some steps of competition analysis with respect to online platforms.

2.2.2. Multi-Sidedness and Network Effects

As suggested above, the second part of subchapter 2.2. will deal with the connection between multi-sidedness and network effects. As was the case in subchapter 2.1., both "traditional" and "data-driven" network effects will be discussed below.

[58] EVANS, SCHMALENSEE, op. cit. 51, p. 155-157; see also examples in HOLZWEBER, Stefan. Market Definition for Multi-Sided Platforms: A Legal Reappraisal. *World Competition*. 2017, **40**(4), p. 563-564.

[59] The more customers use the Uber app in a given city or a region, the more drivers will be attracted to the platform; similarly, the more travellers turn to Airbnb to search for accommodation, the more owners will be tempted to put their property for rent on the platform. See STUCKE, GRUNES, op. cit. 8, p. 189.

Multi-sided markets can be characterised by the presence of network effects; it is, however, necessary to properly distinguish between the types of network effects already discussed and those specific precisely to multi-sided markets.[60] As was mentioned above, the notion of multi-sidedness of businesses or markets is extensively discussed in literature; one recent characterization of the phenomenon explains multi-sidedness by two factors: firstly, that on such a multi-sided market distinct groups of individuals interact with each other (as explained above) and secondly, that so-called *cross-platform* network effects exist between these groups.[61]

Looking at any such market, it is possible to identify a version of an *indirect* network effect, e.g. that the increasing number of Facebook users makes it more interesting for advertisers to buy advertising space on the platform. The indirect nature of network effects in the case of multi-sidedness, however, does not refer to the increased demand for a secondary or complementary *product*, but rather describes the fact that as the number of users on *one side* of a platform increases, so does the interest (and consequently the number) of users on the *other*.[62] The Google search engine (together with Facebook attracting the overwhelming majority of digital advertising spending[63]) can be taken as another simplified example: one side of its platform attracts users of the search engine, while the other consists of advertisers who, through such a platform, attempt to reach the increasing number of users.[64]

With the successful connection of the various "sides" of these markets, online platforms may create a very strong position to collect data that "flows" through them due to the fact that the relationship between the two (or more) groups of users is realised precisely on such a platform. As already suggested above, this is a way in which an online platform can move towards the idea of a

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[60] See GRAEF, op. cit. 12, p. 18. Other authors, as already suggested at the beginning of this chapter, use slightly different structures of network effects typologies - to illustrate, Stucke and Grunes use four different "categories" of network effects, while recognising the direct/indirect distinction - in this respect, see generally STUCKE, GRUNES, op. cit. 8, p. 162, 170, 186, 189, 200. The two examples covered below in this subchapter essentially correspond to what Stucke and Grunes call "traditional network effects" and "traditional spill-over network effects in multi-sided online platforms". See STUCKE, GRUNES, op. cit. 8, p. 162-162, 189.

[61] These are sometimes also referred to as cross-side network effects. See SHELANSKI, Howard, Samantha KNOX and Arif DHILLA. 8. Network effects and efficiencies in multi-sided markets. In: *Rethinking Antitrust Tools for Multi-Sided Platforms* [online]. OECD, 2018, p. 189-198 [cit. 2019-03-07], p. 189. Available at: http://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf. See also GRAEF, op. cit. 12, p. 22, who works with a three-point understanding of multi-sidedness, possibly due to reliance on different or narrower body of work on multi-sidedness.

[62] GRAEF, op. cit. 12, p. 22. This for instance includes the notions of single- and multi-homing on either side of the market - see for a particularly detailed analysis of factors to be taken into account in such assessments COLLYER, Kate, Hugh MULLAN and Natalie TIMAN. 3. Measuring market power in multi-sided markets. In: *Rethinking Antitrust Tools for Multi-Sided Platforms* [online]. OECD, 2018, p. 71-86 [cit. 2019-03-07], p. 76-78. Available at: http://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf.

[63] GARRAHAN, Matthew. Google and Facebook dominance forecast to rise: Tech duopoly to account for 84% of online advertising spend this year, forecasts report. *Financial Times* [online]. Financial Times, 2017 [cit. 2019-03-07]. Available at: https://www.ft.com/content/cf362186-d840-11e7-a039-c64b1c09b482.

[64] See e.g. GRAEF, op. cit. 12, p. 53.

data-opoly, the "coral reef" that attracts various sources of data and facilitates its transfer and collection.

In addition, Stucke and Grunes came forward with a data-driven "category" of effects in this area as well, in the form of "data-driven" *spill-over effects* (as opposed to "traditional" *spill-over effects*).[65] This way, online platforms not only build the opportunity to collect data, but also enhance it with the use of already available data. As in subchapter 2.1., the influence of big data in such cases should be best understood as an additional layer of effects on top of the traditional ones. With the use and analysis of big data, an online platform can e.g. tailor online advertisements, search results, shopping suggestions etc. for each individual user and, in doing so, generate greater returns to the scale and scope of data. It thus creates more benefits for one side of a market, which in turn helps to involve the other.[66] While online platforms rely on traditional network effects as well, it is through the use of data they can enhance their services much further, in e.g. providing information on what users endorse (through "liking" posts on Facebook or using similar features in different services) or even spotting emerging trends in their interests and subsequently selling such information to advertisers.

Nonetheless, while multi-sided markets share these important characteristics, this does not mean that every online platform exhibits these connections and the corresponding effects in a uniform way. For instance, according to OECD analyses, it is possible to distinguish between so-called *service-based* and *subsidy-based* platforms.[67]

The former category is exemplified by the Airbnb platform, where a "supply side" of the market in the form of accommodation owners can be identified as well as a "demand side" in the form of people seeking accommodation. One side provides a service to the other through the platform, which usually asks for a fee taken from the price of the service.[68]

The latter category is represented by Facebook. Facebook users do not pay a price for using the service because they have free access to the platform. The other side of the platform, the advertisers,

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[65] Compare STUCKE, GRUNES, op. cit. 8, p. 189 and p. 190-191.

[66] One example of these data-driven network effects is the case of Coupons.com, which, through analysing data, has a clear advantage over traditional paper-based coupon providers. As paper coupons can be only distributed in large amounts and most importantly with more or less the same content (i.e. applying to the same goods), the rate of coupon use – redemption – is going to be limited. Conversely, if coupons are distributed through an online platform, it is possible to analyse the data provided by customers (and also analyse them with much less effort than if one wanted to analyse the usage of paper coupons) and with an increasing amount of data at the platform's disposal, it is possible to better predict what goods are consumers interested in - tailoring the coupon offers to this information and making it more likely that customers will use them. This in return will help attract more retailers to the platform and so on. See STUCKE, GRUNES, op. cit. 8, p. 191-193.

[67] SHELANSKI, KNOX, DHILLA, op. cit. 61, p. 190-192.

[68] Ibid.

do, however, have to pay to advertise on the platform and in this way, subsidise the cost of usage of Facebook users.[69]

The strength of *cross-platform* network effects varies in these two types of platforms: service-based platforms exhibit relatively symmetrical network effects: the more people seek accommodation, the more homeowners benefit and vice versa. In contrast, there is little interdependence of this kind in subsidy-based platforms: users only benefit from having enough advertisers to subsidise the cost of running the platform; excessive amount of advertisements can even provide negative experience to the users.[70]

In conclusion, the notion of multi-sidedness can thus also be expressed with the use of network effects, which can be further enhanced with the use of big data. As this subchapter explained, regardless of the type of platform, the effective use of the multi-sided nature of certain markets is another crucial reason behind the rise of online platforms into their current prominence. Furthermore, even with comparison to "offline" platforms, online platforms that take advantage of the amount data they are in a prime position to collect can stretch their position even further.

2.3. Competition Concerns Arising from the Accumulation of Data

In the two previous subchapters, it was shown that network effects and the ability to connect the sides of a multi-sided market (in both cases possibly enhanced by the use of big data and its analysis) can play an important role in the success of online platforms. However, these properties of online platforms also raise numerous concerns, because they arguably enable these platforms to occupy a very strong position in their respective markets and they also mean that enormous amount of data may "flow" through these platforms.

In general, the concern closest to competition law is that online platforms can acquire a position of significant *market power*.[71] It is generally accepted that the presence of network effects in a

[69] SHELANSKI, KNOX, DHILLA, op. cit. 61, p. 190-191. As the authors explain therein, in the case of subsidy-based platforms, one more element is present in contrast to service-based platform: often, the subsidising side is not providing any sort of service or product that individual users would want and because of which they would join the platform (e.g. advertisement); because of this characteristic, another "side" of the market has to be present, most often in the form of content creators or providers. These content creators may (in the case of Facebook users, who effectively create the content other users come to Facebook for) or may not (as would be the case of journalists in e.g. online media) correspond to the two sides on a service-based platform.

[70] Ibid., p. 192.

[71] It should, however, be pointed out at the outset that this is not a claim accepted without controversy. If we look at the discussion of network effects and multi-sided markets above, it is certain these are at least *capable* of strengthening the position of an online platform and helping it obtain access to more data than its competitors who are not taking advantage of these phenomena are able to. Nonetheless, the significance of these effects is sometimes contested. Compare generally e.g. AUER, PETIT, op. cit. 56, on one side and STUCKE, GRUNES, op. cit. 8, on the other side of the debate.

given market does not mean that it would be impossible to compete in such a market, even if a platform has already built up its position thanks to these effects. Nonetheless, there is a concern that because of them, there is a danger that such a market will "tip" to one or a very small number of platforms (theoretically, those that managed to use the factors discussed in previous subchapters to their benefit the soonest or in the most efficient way).[72]

The "data-advantage" of one undertaking above others can manifest itself best in a scenario where a small company or a new entrant attempts to compete with an established online platform, where the gap in access to data can act as barrier to competition: the platform will be able to access more data, provide better services and consequently attract more users, who will once again provide more data. Smaller competitors will not be even remotely able to replicate this kind and scale of operation. This can be coupled with increased revenues for the former group, enabling these companies to increase investments into research and development and once again, improve their service in a way smaller competitors cannot.[73] Thanks to this process, a platform may be able to reach a "critical mass" which will enable it to remain in its strong position metaphorically as a "gatekeeper" to the type of service it provides.[74]

Furthermore, another set of concerns revolves around the possibility of the *lock-in* of customers, be they individual users, who, depending on the type of platform, may not be charged any price to use the platform (e.g. Facebook users), or e.g. advertisers. This situation can arise when the *cost of switching* to a different service or a different platform would be so high that the user (or advertiser or any other relevant participant in a similar role) would not be reasonably able to do so, even though he or she would prefer to change the service used. As a result, not only is the entry of competitors possibly more difficult (but such a conclusion is subject to the impact of *multi-homing,* discussed below) and a lock-in has negative influence on competition in itself, but such a situation also facilitates anticompetitive conduct, as a lock-in creates the basis for future potential exclusionary behaviour of a dominant undertaking.[75]

One example of a potential lock-in situation can be communication applications: even if a customer wants to start using a different communications app than he or she is currently using (for reasons that may vary, e.g. better privacy protection, more convenient interface etc.), it might be very costly to do so; the different applications might not be interoperable and leaving one would thus effectively mean abandoning the group of people using the original "app", whose participation

[72] STUCKE, GRUNES, op. cit. 8, p. 163.
[73] BKA/ADC, op. cit. 13, p. 12-13. See also EUROPEAN COMMISSION, op. cit. 13, p. 98-99.
[74] GRAEF, op. cit. 12, p. 50-51.
[75] Ibid.

made it attractive for the said user to consume such service in the first place.[76] Similar arguments can be made regarding the benefits obtained through the ability of a platform to analyse one's data and personalise the service (e.g. search engine results, personalised purchase suggestions) or the difficulty in successfully transferring one's social media profile (even if it would not carry the "social" cost as is the case with the communications applications example above).[77] For advertisers, difficulty may stem from the degree to which it is or is not possible to easily transfer advertising campaigns to different platforms; for sellers in an online marketplace, difficulties may arise when attempting to switch to a different platform, but not abandoning their reputation obtained through customer reviews at the same time.[78]

On the other hand, it is often argued that users of online platforms *multi-home*, that is, that they use multiple platforms (e.g. through using multiple applications) to get the *same* kind of service, to fulfil the *same* needs.[79] Because of multi-homing, the concerns about possible entrenchment of one platform in a given market are said to be exaggerated.[80] However, the reality is more nuanced: questions can be asked to what degree do users actually multi-home and to what extent do they use multiple platforms to get similar, but at most complementary services (e.g. using Facebook for social networking and LinkedIn for professional networking would not qualify as multi-homing[81]). Furthermore, another question is whether *any* level of multi-homing is sufficient to dispel the concerns about market position of a dominant platform or, given the importance of data-driven effects, only multi-homing with *sufficient intensity* across all platforms can do so,[82] or even whether it is possible for a platform to effectively exercise its market power *in spite of* users' multi-homing.[83]

Effectively, the abovementioned set of concerns revolves around the position of market power of an online platform and the barriers to entry for its competitors. So far, this is a matter that has mostly concerned competition authorities during the approval of mergers.[84] Furthermore, while obtaining certain levels of market power due to the above-mentioned factors and holding this position because of user lock-in may raise concerns, these two situations in themselves are not problematic from the point of view of the rules on anti-competitive *conduct*.

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[76] And in fact, this was the discussion in the *Facebook/WhatsApp* merger case (discussed further in chapters below); see STUCKE, GRUNES, op. cit. 8, p. 164-165.

[77] GRAEF, op. cit. 12, p. 42-46.

[78] Ibid., p. 40-43.

[79] EVANS, David S. Some Empirical Aspects of Multi-sided Platform Industries. *Review of Network Economics.* 2003, **2**(3), p. 198-199; see also LERNER, op. cit. 44, p. 22-23.

[80] BKA/ADC, op. cit. 13, p. 28.

[81] See Chapters 4 and 5 and the reflection on the *Microsoft/LinkedIn* merger decision discussed therein.

[82] BKA/ADC, op. cit. 13, p. 29.

[83] STUCKE, GRUNES, op. cit. 8, p. 169.

[84] BKA/ADC, op. cit. 13, p. 16-17.

On the other hand, there are multiple concerns regarding the use of such position, i.e. anticompetitive behaviour involving data. These stretch from e.g. using data analysis or even specialised algorithms to increase transparency on a market and thus facilitating collusion,[85] relying on an ever-increasing ability to analyse individual customers' behaviour in order to introduce price discrimination[86] or leveraging of dominant position into other relevant markets,[87] to concerns regarding conduct of an online platform that seeks to extend its "data advantage" through accessing more data.[88] These concerns, however important, are, nonetheless, not subject to further discussion, as the thesis is focused on the impact of refusals to supply as exclusionary anticompetitive behaviour and its relationship to access to big data.

This chapter (and partially Chapter 1) sought to present the importance of accessing big data for online platforms, both in terms of the importance of data vis-à-vis methods of its analysis, but most of all as a crucial advantage that has the potential to strengthen an already strong online platform's position. As a result, an online platform can become a "data-opoly" and concentrate large amounts of big data within its control, with the result that other competitors, in a variety of situations and markets, may not be sufficiently able to either access such data or collect it. The aim of this thesis, as also already presented in Chapter 1, is to examine under what circumstances and with what effect is it possible under EU competition law for undertakings, other than the dominant online platforms, to access big data held by these players.

[85] See EZRACHI, STUCKE, op. cit. 20.

[86] BKA/ADC, op. cit. 13, p. 21.

[87] See Chapter 4 and the *Google Shopping* decision discussed therein, which is an example of a dominant platform attempting to translate its advantage into other markets in a way contrary to EU competition law.

[88] With the latter case, it is not only EU competition law that comes into play, but possibly also concerns about privacy and data protection. STUCKE, GRUNES, op. cit. 8, p. 259-276; BKA/ADC, op. cit. 13, p. 22-25.

3. The Legal Framework for Refusal to Supply

While the previous chapter provided the factual background for further assessment, the aim of the third chapter is to provide the legal framework applicable to the analysis of anticompetitive refusals to supply in EU law and to outline its development. The chapter starts with an account of the so-called *essential facilities doctrine* used in U.S. law (subchapter 3.1.), which is often mentioned in connection with refusal to supply cases (as is the question whether data is an "essential facility"). The second subchapter will show, however, that EU law never explicitly adopted this doctrine and instead went on to develop independently, while the U.S. doctrine seemingly stalled (subchapter 3.2.). Finally, the current framework on refusal to supply under Art. 102 TFEU will be provided (subchapter 3.3.).

3.1. The Essential Facilities Doctrine in U.S. Antitrust Law

This subchapter provides an overview of the U.S. antitrust law doctrine of *essential facilities.* Even though, as will be shown in the next subchapter, EU law develops independently of this doctrine, the term "essential facility" is still sometimes used in the EU law debate on the importance or indispensability of certain inputs for competition on various markets. In this way, the "refusal to supply" case-law developed by the Court of Justice is distantly connected to U.S. antitrust law,[89] albeit the doctrine is unquestionably one of its more controversial parts.[90]

The doctrine was developed within the context of "refusal to deal" cases, which provided an exception to the basic rule that one does not have any obligation to deal with his or her competitors.[91] Hovenkamp defines the doctrine as requiring the owner of a *properly defined essential facility* to share it with others, with a refusal to do so being against the law.[92]

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[89] While neither the Court of Justice nor the European Commission use the term *essential facility* explicitly on a regular basis, opting instead for notions of *indispensability* or *objective necessity,* Jones and Suffrin note that in EU law debate, as long as no specific legal significance is accorded to it, "essential facility" is nevertheless a convenient expression to use, due to its familiarity to competition lawyers. See JONES, SUFFRIN, op. cit. 4, p. 500.

[90] Some authors treat it only with mild reservation, as a doctrine with a *"long and respected history as part of U.S. antitrust law."* See PITOFSKY, Robert, Donna PATTERSON and Jonathan HOOKS. The Essential Facilities Doctrine Under United States Antitrust Law. *Antitrust Law Journal*. 2002 **70**(2), p. 445. Some reflections, on the other hand, are much more critical, especially the one of Hovenkamp, who stated that: *"[t]he so-called 'essential facility' doctrine is one of the most troublesome, incoherent and unmanageable of bases for [the liability under Sec. 2 of the Sherman Act]. The antitrust world would almost certainly be a better place if [the doctrine] were jettisoned, with a little fine tuning of the general doctrine of refusal to deal to fill any gaps."* See HOVENKAMP, Herbert. *Principles of antitrust*. St. Paul, Minnesota: West Academic Publishing, 2017. p. 282.

[91] PITOFSKY, PATTERSON, HOOKS, op. cit. 90, p. 446.

[92] HOVENKAMP, op. cit. 90, p. 281-283.

The earliest case with a form of essential facility was the *Terminal Railroad* case, a 1912 judgment in which the U.S. Supreme Court considered an action against 38 defendants organized into the Terminal Railroad Association.[93] Effectively, the association managed to hold all local facilities providing access to either bank of the Mississippi river, creating thus the first apparent example of an *essential facility* (also called a "bottleneck monopoly").[94] The Court found this arrangement in violation of the U.S. Sherman Act and in the end, the association was ordered to grant the use of its facilities to any non-participating party on a non-discriminatory basis and for rates within a reasonable range.[95]

Another important decision was the 1973 U.S. Supreme Court decision in *Otter Tail.*[96] Otter Tail was a vertically integrated company in Minnesota which produced electricity, sold it at retail level and owned the power lines for its transfer.[97] Otter Tail wanted to force local municipalities to subscribe to its services, but when some of the municipalities decided to purchase power from an apparently cheaper source, Otter Tail refused to transfer that power through its own power line network.[98] The Court held that Otter Tail *"sought to substitute for competition anticompetitive uses of its dominant economic power [...]"* and, similarly to the case discussed above, upheld a decree which ordered the company to transfer electricity through its power lines.[99]

The *MCI* judgment then laid down the legal test for the doctrine in a way that remains accepted until today.[100] MCI provided long distance telephone services; AT&T owned the local telephone loops the access to which MCI sought. The Supreme Court found for MCI, laying down the following 4-step formula for application of the doctrine, requiring that firstly, the essential facility must be under the control of a monopolist, secondly, that any competitor is practically or reasonably

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[93] *United States v. Terminal Railroad*, 224 U.S. 390 (1912).

[94] The association managed to acquire a number of properties and companies, including the only bridge over the Mississippi river in St. Louis, the rail lines from which the bridge could be used from either bank and even a competing local ferry company and another bridge constructed later and its connecting facilities. The terrain in the area made it prohibitively expensive for any other company to replicate this structure. See *United States v. Terminal Railroad*, 224 U.S. 390 (1912), p. 391-394, 397. See also SULLIVAN, Lawrence A. and Warren S. GRIMES. *The law of antitrust: an integrated handbook*. 2nd ed. St. Paul, Minnessota: Thomson/West, 2006., p. 125.

[95] Ibid.

[96] *Otter Tail Power Co. v. United States,* 410 U.S. 366 (1973) is considered by academic literature to be the paramount precedent in unilateral refusal to deal cases. The approximately sixty years long gap between the two judgments discussed so far was obviously not devoid of any developments; for instance, in *Associated Press* the Supreme Court debated the notion of "indispensability" (which is a term used by the Court of Justice, though not in the same meaning) of news provided by AP, one of the largest news agencies. The decision held that a finding of indispensability of such an input was not a precondition for finding a breach of the Sherman Act (See *Associated Press v. United States*, 326 U.S. 18). Sullivan and Grimes also point to a body of lower-court case law accumulated over the years in response to the development of the doctrine; see SULLIVAN, GRIMES, op. cit. 94, p. 125 and case-law cited there.

[97] *Otter Tail Power Co. v. United States,* 410 U.S. 366 (1973), p. 370-371.

[98] *Otter Tail Power Co. v. United States,* 410 U.S. 366 (1973), p. 378-379.

[99] *Otter Tail Power Co. v. United States,* 410 U.S. 366 (1973), p. 380-381.

[100] *MCI Communications Corp. v. AT&T Co*., 512 U.S. 218 (1994); HOVENKAMP, op. cit. 90, p. 284. This is, however, conditional on how one reads the *Trinko* decision, which will be discussed subsequently.

unable to duplicate it, thirdly, that there is a denial to such competitor of the use of the facility, and lastly that the provision of access to the facility is feasible.[101]

The development of the doctrine nonetheless suffered a significant setback in the 2004 *Trinko* ruling by the U.S. Supreme Court. The court decided that a refusal to deal claim was not possible in a situation where a dominant incumbent was obliged *by statute* to provide access to a certain network.[102] However, a part of the majority opinion written by Justice Scalia came into prominence through its strong opinion on the doctrine as such, stating: *"[w]e have never recognized such a doctrine [...] and we find no need either to recognize it or to repudiate it here [...]"* and reducing it into a doctrine used only by U.S. lower courts.[103]

By virtue of these statements, *Trinko* is seen as a watershed moment; even though the doctrine was merely declared inapplicable in that particular case, it is claimed that it is now *"largely dormant"*[104] or that *"little remains"* of it;[105] Hovenkamp argues that after *Trinko, "not many essential facility claims will survive"* the limitations placed on its application.[106]

In conclusion, the essential facilities doctrine is undoubtedly influential and its "roots" go far in the history of law; at the same time, however, because of the ruling of the Supreme Court, it now appears to be dormant. As the following subchapters will show, in contrast, EU law, which has for a time developed alongside this doctrine, has not suffered a similar setback; nonetheless, at the same time, it is subject to its own framework and conditions.

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[101] Ibid.

[102] *Verizon Communications v. Law Offices of Curtis V. Trinko*, LLP, 540 U.S. 398 (2004). Under a specialised telecommunications regulation, Verizon was an incumbent (and dominant) operator of a local network and as such it was obliged to provide access to the network to AT&T who wanted to provide local telephone services. The plaintiff and customer, the Trinko law firm, claimed that failure by Verizon to comply with that (statutory) obligation in a precise manner amounted also to anti-competitive conduct. The decision distinguished the case from *Otter Tail* on the ground that power transmission in the 1973 decision was already being sold to others by the time the judgment was rendered, while the sharing obligation of local loop connections in *Trinko* was a new phenomenon only introduced by statute. See part III of the Opinion of the Court in *Verizon Communications v. Law Offices of Curtis V. Trinko*, LLP, 540 U.S. 398 (2004).

[103] See part III of the Opinion of the Court in *Verizon Communications v. Law Offices of Curtis V. Trinko*, LLP, 540 U.S. 398 (2004). Ortiz claims that this part of the opinion, even though described as a mere *obiter dicta*, became its legacy which influenced the overall perception of the doctrine in the eyes of courts, making it harder for plaintiffs to successfully rely on it; see ORTIZ, Armando A. Old Lessons Die Hard: Why the Essential Facilities Doctrine Provides Courts the Ability to Effectuate Competitive Balance in High Technology Markets. *Journal of High Technology Law*. 2012, **13**(1), p. 190-191, and case-law cited therein under footnote 141. The judgment is also often seen as a culmination of the criticism levied against the doctrine; see ABRAHAMSON, Zachary. Essential Data. *Yale Law Journal.* 2014, **124**(3), p. 869-870, or SULLIVAN, GRIMES, op. cit. 94, p. 127.

[104] ORTIZ, op. cit. 103, p. 190.

[105] ABRAHAMSON, op. cit. 103, p. 870.

[106] HOVENKAMP, op. cit. 90, p. 284; Hovenkamp argues that the judgment placed four limitations on essential facility claims: aside from 1) limitations flowing from the distinction from *Otter Tail*, there must be 2) no regulatory supervision of forced sharing, 3) rivals must be unable to supply the facility for themselves and 4) the sharing with competitors must be rationally profitable to the facility holder.

3.2. Development of the Refusal to Supply Case-Law in EU Competition Law

This subchapter will provide a segue between the previous discussion of essential facilities and the current form of the refusal to supply framework in EU law. It will deal with the first steps towards such a framework taken by the Commission and the Court of Justice at the time when the essential facilities doctrine had been also developing in the U.S.; it will, nonetheless, show that EU law refrained from explicitly adopting this doctrine, albeit sharing similar concerns, and developed its own approach.

The previously discussed U.S. essential facilities doctrine finds its closest counterpart (albeit with differences) in EU law in *some* of the so-called "refusal to supply" cases brought under Art. 102 TFEU (or its previous versions).

The essential facilities doctrine, as given shape by e.g. the *MCI* judgment, enables making relatively straightforward conclusions about the nature of a given facility and the inability of others to replicate it. It is thus not a surprise that an essential facility, thus properly defined, is most easily seen in various types of physical infrastructure, from "local loop" connections to sea ports. Arguably, some of the cases considered under Art. 102 TFEU could be viewed in light of the essential facilities doctrine.[107]

On the other hand, in situations where the reality is much more complex, it is not pertinent to rely solely on the doctrine, but it is rather necessary to turn to the criteria developed for the assessment of refusals to supply, as they enable to consider and balance in more depth the interests of the undertakings concerned.[108] As will be continually shown in further chapters, this is precisely the situation with access to data, including big data; it is not feasible to decide in advance and with sufficient clarity whether some type of data (or even big data in general) is an essential facility and it thus seems more reasonable to assess further on the question of access to big data in light of the refusal to supply approach.

A dominant undertaking may fail to comply with the prohibition contained in Art. 102 TFEU when it refuses to supply its products or services or refuses to grant access to its facilities. Similarly

[107] Under Art. 102 TFEU, any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. For greater clarity, references to any previous version of Art. 102 TFEU are replaced by references to the current article. This distinction between the essential facilities doctrine and the refusal to supply approach is based on the comparison of the test derived from the *MCI* ruling; in this sense, the refusal to supply case-law offers not only a larger variety of cases to consider (as explained below in the subsequent subchapter, including e.g. intellectual property rights or interoperability information), but also presents a differently conceived test, where the notion of indispensability is only one part of the considerations taken into account. Nonetheless, the Commission has used the term "essential facility" on some occasions (see the decisions cited under footnote 118).

[108] EUROPEAN COMMISSION, op. cit. 13, p. 98.

to the U.S. refusal to deal cases, these situations involve an intrusion into the principle that in a market economy, undertakings are free to choose with whom they wish to deal.[109]

The first significant occasion when a refusal to supply was found to infringe Art. 102 TFEU was the 1974 Court of Justice *Commercial Solvents* judgment. Originally, the Commercial Solvents Corporation sold, through its subsidiary in Italy,[110] raw material to the Zoja pharmaceutical company, which then processed it and used it to manufacture anti-tuberculosis medicines.[111] For a certain period of time, Zoja ceased ordering the raw material from Commercial Solvents' subsidiary and turned to independent suppliers; at the same time, Commercial Solvents changed its business policy. The Italian subsidiary was enabled to develop final products on its own and the supply of raw material was planned to be reduced in order to make space for its own production on the market. Consequently, when Zoja sought to return to the supply by the subsidiary, it was refused.[112]

In the key part of the judgment, the nature of refusal to supply was summarized as follows: Commercial Solvents was the dominant undertaking in the market for raw materials; it sought to use that dominant position to compete with undertakings which processed the raw material (i.e. on the final product market) by refusing to supply them with the key input; this then caused the risk that *any* competition to Commercial Solvents on the final product market from Zoja (and any other undertaking in such a situation) would be eliminated.[113]

Commercial Solvents thus marks the point of departure of the whole body of case-law on refusals to supply that followed; nonetheless, references to "essential facilities" or any allusions to U.S. antitrust law were absent in the reasoning of the Court (although the *Otter Tail* case was only decided a year prior to *Commercial Solvents*). Further case-law concerning refusals to supply gradually developed into two major lines of decisions with on line of cases involving the existence of both so-called *upstream* and *downstream* markets and the second line without such market definition.[114] AG Jacobs explained in his Opinion in the *Oscar Bronner* case that: *"[i]n many cases*

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[109] JONES, SUFFRIN, op. cit. 4, p. 496. According to AG Jacobs in his *Oscar Bronner* Opinion *"it is apparent that the right to choose one's trading partners and freely to dispose of one's property are generally recognised principles in the laws of the Member States, in some cases with constitutional status. Incursions on those rights require careful justification."* See Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, para 56.

[110] Both being part of the same economic unit in terms of competition law.

[111] Joined cases 6 and 7/73, *Commercial Solvents* [1974] ECLI:EU:C:1974:18, paras 23-24.

[112] Ibid.

[113] Joined cases 6 and 7/73, *Commercial Solvents* [1974] ECLI:EU:C:1974:18, para 25; In the end, the Court of Justice also held that the Commission had the power to order the supply of certain amount of the material to Zoja. See Joined cases 6 and 7/73, *Commercial Solvents* [1974] ECLI:EU:C:1974:18, para 46.

[114] E.g. see the distinction in JONES, SUFFRIN, op. cit. 4, p. 532, where the authors define the latter category as cases involving the supply of products for distribution and resale in light of the suppliers' attempts to protect their commercial interests an example of which was the *Sot Lélos kai* case which involved a refusal to supply in order to prevent parallel trading of medicines. See Joined Cases C-468/06 to C-478/06, *Sot. Lélos kai* [2008] ECLI:EU:C:2008:180. In the latter category, the Court of Justice came close to using the phrase "essential facilities" in the 1978 *United Brands* case, where

the relationship [between a dominant undertaking and the undertaking seeking supply of a certain product] is vertical in the sense that the dominant undertaking reserves the product or service to, or discriminates in favour of, its own downstream operation at the expense of competitors on the downstream market."[115] Furthermore, while there is not a legal distinction between the relative importance of either category, according to the European Commission only the first category is considered an enforcement priority.[116]

It was precisely in 1998 after AG Jacobs submitted his opinion in *Oscar Bronner* that the key outline of the essential facilities doctrine and its relationship with EU law was laid down.[117] Jacobs extensively described the understanding of the doctrine in U.S. law as well as the existing references to the doctrine in the practice of the European Commission.[118] Nonetheless, the judgment did not explicitly endorse the doctrine and instead confirmed that EU law, including the rules on refusals to supply, was to develop independently of this concept. The notion of an *essential* facility then seemingly found its closest reflection when the Court delivered its judgment and laid down the conditions under which a refusal to supply was unlawful in light of the criterion of *indispensability*.[119]

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the company was accused of ceasing supplies of bananas to distributors and ripeners, for whom these presented an essential resource. See Case 27/76, *United Brands* [1978] ECLI:EU:C:1978:22, para 122.

[115] The Advocate General also noted there that "*[the relationship in question] may however also be horizontal in the sense of tying sales of related but distinct products or services.*" This, nonetheless, became only one of the examples of cases not defined by existence of upstream and downstream markets. See Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, para 50.

[116] EUROPEAN COMMISSION. *Communication from the Commission — Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*. *OJ C 45, 24.2.2009, p. 7–20,* paras 76-77.

[117] The *Oscar Bronner* case was shortly preceded by the decision of the Court of Justice in Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98 (commonly referred to as *Magill,* by the name of the company seeking access to broadcasting information). Apparently, the *Maggil* judgment was at the time thought of as an endorsement of the doctrine which led AG Jacobs to briefly outline the logic of the doctrine and examples of recognised facilities, referring to among others, *Otter Tail*, *Terminal Railroad* and (importantly due to its enumeration of the criteria of the legal test for application of the doctrine) *MCI*. See Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, paras 45-47. Compare also EUROPEAN COMMISSION, op. cit. 13, p. 98-99 for the current outlook on the doctrine.

[118] Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, paras 50 and importantly 65, where Jacobs submitted that the case could have been solved either through the application of the essential facilities doctrine or through a response to a refusal to supply, but that he did not see much space for intervention in any eventuality. Before this Opinion, the Commission also brought two interim measures decisions in which it came up with the following definition of essential facilities: *"a facility or infrastructure, without access to which competitors cannot provide services to their customers."* See Commission Decision COMP/IV/34.174 – *Sealink/B&I Holyhead (interim measures)*, para 41 and Commission Decision COMP/IV/34.689 – *Sea Containers Ltd/Stena Sealink (interim measures)*, para 66. Crucially, it could be argued that in *Oscar Bronner,* the Court of Justice effectively refused to explicitly recognise the doctrine as the leading legal test for future cases precisely because it decided to examine the refusal at hand in light of the rules concerning refusals; with that in mind, it still holds that a number of cases can be examined under both approaches.

[119] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, para 41. See also BAILEY, David and Laura Elizabeth JOHN, eds. *Bellamy & Child: European Union law of competition*. New York, NY: Oxford University Press, 2018, p. 956.

The case-law on refusals to supply then further developed into several specific groups of cases: some authors distinguished them according to the type of input in question,[120] while another method of categorising these cases differentiates between dominant undertakings refusing to further supply *existing* customers and cases concerning refusals to supply *new* customers.[121] It is generally submitted that when the refusal comes in a situation without an existing contractual relationship between the undertakings concerned, the Court of Justice is more cautious to impose an obligation to supply than in cases of refusals to supply existing customers.[122] Beyond these differentiations, there are also further ways how to sort out cases falling within the refusal to supply umbrella.[123]

As this subchapter showed, since the referral to the U.S. doctrine was introduced into the EU law debate (precisely at the time when the EU legal test for refusals to supply started taking shape), the case-law on refusals to supply has steadily evolved and taken concrete contours. On the other hand, it has done so independently of the essential facilities doctrine known from U.S. law. The doctrine remains sometimes mentioned before the Court of Justice, [124] but nowadays the EU law concept of refusals to supply develops on its own and has evolved to the form presented in the next subchapter.

3.3. The Current Legal Framework for Refusal to Supply in EU Law

This subchapter will provide the current understanding of the analytical framework for refusal to supply cases under EU law. In doing so, it also contrasts the current state of EU law to the contemporary situation in U.S. antitrust presented above. Most of all, in discussing the form of the refusal to supply "test", this subchapter presents the structure adopted in the following chapters of

[120] JONES, SUFFRIN, op. cit. 4, p. 499, 511, 521; e.g. refusals on part of car suppliers to supply spare parts to providers of repair services, refusals to supply concerning intellectual property rights (which partially build on the spare part cases) and refusals to provide information necessary to ensure interoperability in the IT sector.

[121] Based on BAILEY, JOHN, op. cit. 119, p. 954-956; A similar categorization is made by Graef, who distinguishes between *absolute refusals* (where the dominant undertaking has not supplied to others before), disruptions of existing levels of supply, and discriminatory conditions of supply. See GRAEF, op. cit. 12, p. 209.

[122] BAILEY, JOHN, op. cit. 119, p. 956.

[123] Beyond those mentioned in this paragraph, more distinctions can be made e.g. between refusals made by non-dominant undertakings (falling effectively out of the scope of Art. 102 TFEU), or other types of abuse (e.g. tying or bundling) that can fall under the definition of refusal to supply. See JONES, SUFFRIN, op. cit. 4, p. 497. A different way of looking at refusal to supply cases is to reflect on whether the dominant undertaking is making an outright refusal or whether it is a case of a so-called constructive refusal, where an offer to supply is formally made, but under unacceptable or unreasonable conditions (or supply is made after undue delays). Nonetheless, this distinction is usually only made in order to clarify that even constructive refusals are prohibited under Art. 102 TFEU See JONES, SUFFRIN, op. cit. 4, p. 496; BAILEY, JOHN, op. cit. 119, p. 953-954; GRAEF, op. cit. 12, p. 209-210.

[124] See e.g. the Opinion of Advocate General in Case C-441/07 P, *Alrosa* [2009] ECLI:EU:C:2009:555, where the subject matter appears to have been discussed in terms of "essential facilities" right in the hearing before the Court. See Opinion of Advocate General in Case C-441/07 P, *Alrosa* [2009] ECLI:EU:C:2009:555, footnote 134.

this thesis, including, in particular, Chapter 7 on the interpretation and application of the criteria developed below.

The current legal test defining refusal to supply as behaviour prohibited under Art. 102 TFEU is mainly influenced by four judgments of the Court of Justice: *Magill, Oscar Bronner, IMS*[125] and *Microsoft;*[126] only *Oscar Bronner,* however, is a case of a "generic" refusal to supply; in contrast, *Magill* and *IMS* deal with refusal to supply (or to provide access to) inputs protected by intellectual property rights, whilst *Microsoft* is a case on refusal to provide information necessary for interoperability of computer operating systems and other software.

In *Magill,* the first of these cases, a peculiar situation occurred as a result of British and Irish copyright laws: the TV broadcast listings of RTÉ, ITV and BBC were all protected by copyright and as a result, each of these broadcasters published its broadcast listings individually; no comprehensive listings of their programmes existed at that time.[127] Magill was a publishing company that attempted to produce such a comprehensive listing on a weekly basis, but was soon stopped through copyright infringement injunctions. The case went all the way up to appeal proceedings before the Court of Justice,[128] which ruled that even though a refusal to license (deal) cannot *in itself* constitute abusive behaviour, a certain way of exercising exclusive rights by the rights holder may breach the prohibition on abuse of dominance.[129] In particular, the stations[130] sought to reserve to themselves the secondary downstream market for weekly TV guides by excluding *all competition on that market.*[131]

The judgment, upholding the Commission's decision requiring the stations to license the information, was met with much controversy: in contrast to *Commercial Solvents*, *Magill* involved a *new entrant* to the market seeking access to a certain input.[132] In the following *Oscar Bronner* case,

[125]Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257.

[126] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289.

[127] The closest attempt at this which was authorised by the broadcasters was in the form of "highlights" for a given week; otherwise the stations were quick to resort to legal proceedings against publications not complying with these limited licence conditions, as was also the case of the Magill company. See Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98, paras 7-9.

[128] Originally, the Commission issued a decision requiring the dominant undertakings to license their works with the decision subsequently being challenged before but upheld by the Court of First Instance in Case T-69/89, *RTE v Commission* [1991] ECLI:EU:T:1991:39 and Case T-76/89, *ITP v Commission* [1991] ECLI:EU:T:1991:41.

[129] Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98, paras 49, 50.

[130] The broadcasting stations were already dominant on the upstream market for programme information, as only they were able to produce such information.

[131] Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98, para 56. It should be noted here that the Court relied on a set of "exceptional circumstances" to justify its decision; as summarized by Jones and Suffrin, these were: (1) the lack of substitute for a comprehensive TV programme; (2) the prevention of appearance of a new product due to the refusal; (3) lack of justification for refusal and (4) excluding all competition on the market for weekly TV listings; see JONES, SUFFRIN, op. cit. 4, p. 515.

[132] The controversy arose not in the least because it seemed to confirm the Commission's policy of applying competition rules in a way that, at the time, was seen as a form of previously unseen interventionism; it is true that. in the years

Advocate General Jacobs summarised this in the following: *"the Commission considers that refusal of access to an essential facility to a competitor can of itself be an abuse even in the absence of other factors, such as tying of sales, discrimination vis-à-vis another independent competitor, discontinuation of supplies to existing customers or deliberate action to damage a competitor[.]"*[133] Jacobs, however, also presented the following view on refusals to supply in EU competition law: *"it is important not to lose sight of the fact that the primary purpose of Article 86 [i.e. the current Art. 102 TFEU] is to prevent distortion of competition — and in particular to safeguard the interests of consumers — rather than to protect the position of particular competitors[.]"*[134]

In *Oscar Bronner,* Oscar Bronner published a daily newspaper with a low market share both in circulation and advertising; the Mediaprint company on the other hand published a newspaper with nearly a 50% market share in both. Oscar Bronner unsuccessfully sought the inclusion of its newspaper in Mediaprint's distribution system which the large publisher developed on its own, but Oscar Bronner claimed it would be "unprofitable" for it to develop such a system independently.[135]

However, the Court placed clear limits on the prohibition of refusals to supply as abusive behaviour under EU competition law rules. In order to become a breach of Art. 102 TFEU, a refusal would have to be likely to eliminate *all competition* in the market *on the part of the person requesting* the supply or access, this refusal would have to be *incapable* of being *objectively* justified, and the input access to which was sought would in itself have to be *indispensable* to carrying on that undertaking's business without any actual or potential *substitute* in existence for that input.[136] The case was decided on the last of the criteria: there were no obstacles of "technical, legal or economic" nature that would prevent Oscar Bronner to develop a second home delivery scheme, if needed, with the help of other publishers.[137]

Furthermore, even before turning to that option, Oscar Bronner could have relied on other forms of distribution like kiosk sales, which were – though potentially less advantageous – still a

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between the first instance and appeal decisions, Commission also applied the doctrine to enable access to port facilities to a new ferry service operator in the *Sea Containers/Stena* decision cited above; however, as will be explained in further chapters, such decisions remain rare to this day. See also ALBORS-LLORENS, Albertina. The 'Essential Facilities' Doctrine in EC Competition Law. *Cambridge Law Journal.* 1999, **58**(3), p. 492.

[133] Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, para 50.

[134] Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, para 58.

[135] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, paras 4-8; According to the Court of Justice, the situation could have been hypothetically assessed as an attempt of a dominant undertaking (in a market for "delivery services") seeking to reserve to itself the market for newspapers, which was nonetheless left to the referring court to verify; see Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, paras 33-36.

[136] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, para 41; Jones and Suffrin list these as four requirements, see JONES, SUFFRIN, op. cit. 4, p. 506.

[137] The Court explained that it could only rule to the contrary, if (drawing on the AG's opinion) it was proven that *"it [would] not [be] economically viable to create a second home-delivery scheme for the distribution of daily newspapers with a circulation comparable to that of the daily newspapers distributed by the existing scheme[.]"* See Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, para 46.

viable alternative.[138] It can be argued that in doing so, the Court followed the general spirit of the Advocate General's Opinion and confined the refusal to supply cases to narrowly defined boundaries. Furthermore, this consideration already points to the difficulties of finding a clear-cut essential facility even in cases that only slightly depart from the decisions concerning physical infrastructure; effectively, a network of contracts and contacts is much more cumbersome to describe as an essential facility as it is necessary to consider the alternatives an undertaking could take advantage of. In cases of intellectual property rights, interoperability information or data, such a conclusion appears even more complicated; this thus further supports the use of the refusal to supply approach for these situations.

The *IMS* and *Microsoft* cases developed the criteria in the *Oscar Bronner* test. The *IMS* ruling crucially clarified that it suffices for the finding of a prohibited refusal to supply that there are *two different stages of production* and that they are interconnected so that the original input is indispensable for the secondary product; the Court claimed that the existence of a relevant market for the sought-after input could be only hypothetical.[139]

The Court further held a refusal to supply would breach Art. 102 TFEU only if the input sought was *indispensable* in the sense that such a refusal would exclude *any* or *all* competition on a secondary market (in contrast to competition on part of the undertaking seeking access as in *Oscar Bronner*).[140] This criterion was subsequently modified in *Microsoft,* where the alleged refusal concerned information necessary for interoperability between computer operating systems and software. The Court effectively used the same criteria as in *IMS*,[141] but it is understood to have slightly softened the *indispensability* requirement, as it did not equate it with the *exclusion of competition from the market* (it was enough that competitors' products would not work as well as

[138] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, paras 43-45. Shortly after its delivery, the judgment was commended for several reasons: not only it rejected a per se approach to refusals to deal (thus requiring additional circumstances to be present), but also clarified *Magill* (on which it nevertheless strongly drew with respect to the final form of the legal test) as an exceptional case while at the same time placing clear limits on the use of the doctrine. See JONES, SUFFRIN, op. cit. 4, p. 504, and ALBORS-LLORENS, op. cit. 132, p. 492.

[139] Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, para 45.

[140] Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 38 and 52. The Court held that a refusal to license a copyright was contrary to EU law under the following conditions: that the refusal prevented the introduction of a *new product*, that the license was *indispensable* in the sense that refusal would exclude *any* or *all* competition on a secondary market; and the refusal was *unjustified*. It should be, however, again emphasised that *IMS* was not a case concerning a "generic" refusal to supply as *Oscar Bronner* did, but concerned refusal to license intellectual property rights - this explains the "new product" criterion, not included in the *Oscar Bronner* test, but which was subsequently used in the *Microsoft* case. For further reflection on the developments in *IMS,* see PRETE, Luca. From Magill to IMS: Dominant Firms' Duty to License Competitors. *European Business Law Review*. 2004, **15**(5), p. 1071-1086.

[141] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, paras 322-323; see also confirmation of this reading in JONES, SUFFRIN, op. cit. 4, p. 523.

Microsoft's)[142] but held that a refusal must not lead to the elimination of *effective* competition on the secondary market.[143]

It was noted by Jones and Suffrin that the statements of the Court in *Microsoft* were not explicitly limited only to refusal to license copyright (under which interoperability information could also be protected),[144] which raises questions about the precise understanding of the legal test for finding prohibited refusals to supply, especially with the view to applying this test to refusals to supply involving data as the indispensable input.[145] Graef, for instance, proposes that the so-called "new product" criterion should be added to the criteria laid down in *Oscar Bronner* and modified in subsequent decisions, thus creating a *four-step test* even for refusals to supply concerning inputs not protected by intellectual property rights.[146]

In conclusion, while, as presented in the previous subchapters, refusals to supply in EU law are not assessed with the outright application of the U.S. essential facilities doctrine (or its exact counterpart) and only some forms of (mainly physical) infrastructure could be described as properly defined essential facilities. They are subject to a framework designed by the Court of Justice, which has drawn tangible legal limits around the possibility of accessing inputs held by a dominant undertaking.

As was already mentioned in Chapter 1, the notion of big data does not yet even have a settled definition; furthermore, as will the rest of this thesis show, the situations concerning the access to and the use of data and big data vary greatly in practice. Additionally, as this subchapter suggested, finding an essential facility even in cases that depart only slightly from the "classical" examples of physical infrastructure is not easy and much less so once the input in question takes the form of information of some type, as is e.g. the case with interoperability information. It thus does not seem feasible to straightforwardly define data or big data as essential facility; consequently, the thesis examines this phenomenon from the view of the refusal to supply approach.

The next two chapters will cover the issues of the definition of relevant markets and the establishment of dominant position, respectively; for the purposes of Chapter 7, the three criteria of

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[142] JONES, SUFFRIN, op. cit. 4, p. 530-531; This is also reflected in EUROPEAN COMMISSION, op. cit. 116, para 83, citing the *Microsoft* ruling.

[143] Ibid.; in EUROPEAN COMMISSION, op. cit. 116, para 85, the notion is described this way, albeit without a reference to the ruling.

[144] JONES, SUFFRIN, op. cit. 4, p. 530.

[145] Furthermore, the practical significance of any legal test is in practice also influenced by the Commission's own guidelines on determining when will a refusal to supply become an enforcement priority; in particular, these are that 1) a product or service is objectively necessary to be able to compete effectively on a downstream market, 2) the refusal is likely to lead to the elimination of effective competition on the downstream market, and 3) the refusal is likely to lead to consumer harm; see EUROPEAN COMMISSION, op. cit. 116, para 81.

[146] GRAEF, op. cit. 12, p. 223.

indispensability, exclusion of effective competition on the downstream market and lack of objective justification are going to be used and analysed; the "new product" condition is going to be also examined, firstly, in terms of the merits of its inclusion and secondly, in terms of what kind of effect would the inclusion have on the possible outcomes of the legal test.

4. The Definition of Relevant Markets in Cases Involving Online Platforms

In order to successfully present a scenario in which it is possible to access an online platform's data through the Court's case law on refusal to supply, it is first necessary to define a relevant market in which the online platform holds a dominant position, as well as a relevant market in which the refusal is supposed to manifest itself; only then it is possible to use Art. 102 TFEU as a viable route to gain access to such platform's data.

The determination of a relevant market and the position of a dominant undertaking is a so-called *indirect* method of ascertaining market power: the definition of a relevant market is not an end in itself, but rather a tool or an aid used to conduct assessment of competition and identify which products (or services) are so closely similar that they can be substituted for each other and consequently exert competitive pressure on their respective suppliers.[147] As written by the Commission, *"[m]arket definition is a tool to identify and define the boundaries of competition between firms."*[148] Unlike in some Art. 101 TFEU cases or merger decisions, a finding of abuse of dominance requires that the relevant market is defined much more precisely because of the need to subsequently decide on whether a certain undertaking is dominant in such a market. Specifically, in refusal to supply cases, the determination of a relevant market is also crucial in ascertaining what input can realistically be sought by another undertaking.[149]

In most of the refusal to supply cases discussed in Chapter 3, an *upstream* and a *downstream* market were defined;[150] an undertaking dominant on the upstream relevant market refused to supply an input vital for the competition on the downstream relevant market. Such a market structure appears to be the most pertinent for the issue of obtaining access to big data. Consequently, the rest of this chapter is structured as follows.

The three subchapters will discuss issues which, in practice, are *not* limited to the definition of downstream relevant markets and are regularly dealt with regardless of whether a given situation concerns an upstream and a downstream relevant market. Nonetheless, with respect to the assessment of access to big data, the analysis of these concepts and factors is essential for shedding light on the way a downstream market can look like in such a situation. In order to highlight the

[147] JONES, SUFFRIN, op. cit. 4, p. 56.

[148] EUROPEAN COMMISSION. *Commission Notice on the definition of relevant market for the purposes of Community competition law*. OJ C 372, 9.12.1997, p. 5–13, para 2.

[149] JONES, SUFFRIN, op. cit. 4, p. 57.

[150] Nonetheless, the *Microsoft* case did not exactly fit this description (as will be explained further on) and e.g. in *Commercial Solvents* the judgment used different terms, which, nonetheless, largely corresponded to the notion of upstream and downstream markets.

importance of data as the potentially indispensable input in this kind of analysis, the questions most relevant to the definition of an upstream relevant market in such a setting will be discussed separately in Chapter 5.

The first subchapter will thus provide an overview of the methodology used to define relevant markets and its applicability to cases with multi-sided markets. Furthermore, it will discuss possible modifications to such methodology (in particular the so-called SSNIP test) in order to better reflect the dynamics of multi-sided markets (subchapter 4.1.). Another question discussed will be the proper number of relevant markets defined on the downstream level as there is uncertainty on whether multi-sided markets should be viewed as composed of multiple separate relevant markets or one market encompassing the entire environment (subchapter 4.2.). The last issue discussed with attention to downstream relevant markets will be the geographical scope of relevant markets involving online platforms (subchapter 4.3.).

4.1. The Methods of Defining Relevant Downstream Markets

The questions discussed in this subchapter are firstly aimed at the understanding of how does the way online platforms operate (and which has been largely described in Chapter 2) translate into the legal and economic appraisal of relevant markets. They nonetheless carry another level of importance beyond such simple comprehension: if a refusal to supply case concerning data arises and an undertaking seeks access to data held by an online platform, then the data will constitute an input provided on an (at least a hypothetical) upstream market; the operation of an online platform then logically falls within the downstream level. Furthermore, the practice of defining relevant markets for services provided by online platforms is also indicative of the way a relevant market might be defined for the products provided by an undertaking seeking access to the data held by an online platform.

This subchapter is further divided into four parts. Firstly, the standard method of defining relevant markets and the reasoning behind it is presented (4.1.1.). Secondly, it will be shown that the seemingly most important tool used in such a definition, the so-called SSNIP test, cannot be relied on in cases concerning multi-sided markets; furthermore, even if modifications to such a test are possible, it will be argued that they currently seem impractical for actual use (4.1.2.). Subsequently, further modifications of the standard method of defining relevant markets will be discussed, both in terms of the inclusion of competition on quality (including privacy and data protection) into the analysis (4.1.3.), but also in terms of the so-called competition on innovation

(4.1.4.). Lastly, as a summary, the implications of the problems discussed thus far will be briefly outlined (4.1.5.).

4.1.1. The Standard Method of Defining Relevant Markets

As suggested above, the purpose of this part of subchapter 4.1. is to provide a basis for further discussion and outline the approach used in defining relevant markets in the absence of exceptional circumstances such as the multi-sidedness of the examined markets. The feasibility of this approach in such a scenario is then discussed directly in the next part of this subchapter.

The key element in the EU law approach to determination of relevant markets is *substitutability* or *interchangeability*: a relevant market consists of all products that can be substituted for each other, while products that are not interchangeable will fall out of such a relevant market.[151] Products can be switched for both different products or the same products from a different area; therefore, a relevant market under EU law consists of both a *product market* and a *geographical market.*[152]

In determining the precise scope of any relevant market, two so-called competitive constraints are of key importance: *supply side substitutability*, examining the ability of suppliers to switch production to the relevant products,[153] and in particular *demand-side substitutability*, which takes into account the range of products that can be seen as substitutes by the customer.[154]

A key tool in determining substitutability is the so-called SSNIP test, which is a manifestation of the *hypothetical monopolist test.*[155] Naturally, this is not the only tool available to competition authorities, who can rely also e.g. on past evidence of substitution, enquiries to consumers and

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[151] EUROPEAN COMMISSION, op. cit. 148, paras 7-9.

[152] Ibid. The former aspect of a relevant market comprises *"all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products' characteristics, their prices and their intended use."* The latter encompasses *"area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those area."* For completeness, a temporal aspect of relevant markets is sometimes considered, see JONES, SUFFRIN, op. cit. 4, p. 58 or BAILEY, JOHN, op. cit. 119, p. 324.

[153] Although it is also emphasised that supply-side substitutability may be taken into account when defining markets in situations, "*in which its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy."* See EUROPEAN COMMISSION, op. cit. 148, para 20. In practice, the analysis of supply-side substitutability in cases involving data has been used, but only in a limited number of decisions. For instance, in Commission Decision COMP/M.4731 – *Google/ DoubleClick*, paras 44-47, the supply-side perspective was dealt with in the discussion on the relationship between online and offline advertising; in Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, para 44, the Commission analysed the supply-side substitutability with respect to so-called customer relationship management services. Nonetheless, supply-side substitutability is arguably given more attention while assessing market power.

[154] EUROPEAN COMMISSION, op. cit. 148, paras 13-14.

[155] KRÄMER, Jan and Michael WOLFARTH. Market power, regulatory convergence, and the role of data in digital markets. *Telecommunications Policy.* 2018, **42**(2), p. 156. See also JONES, SUFFRIN, op. cit. 4, p. 61.

customers or consumer surveys.[156] Besides, according to settled case-law of the Court of Justice of the EU, the Commission is neither legally bound by any hierarchy of evidence nor by the need to compulsorily use any particular type in every analysis.[157] Nonetheless, for reasons outlined below, the SSNIP test holds a special place among these ways of defining relevant markets and its usability in multi-sided markets is of crucial importance with respect to the shape of the Commission's decision-making practice, as also presented further on.

The rationale behind the hypothetical monopolist test and its expressions is that a *monopolist has to be able to exert market power* in a given relevant market; in conducting what is basically a thought experiment, by comparing different scenarios involving such a monopolist, competition authorities attempt to deduct the relevant market from cases in which a monopolist would be able to conduct itself in a certain way and cases where it would not.

In terms of the SSNIP test, a small, but significant, non-transitory increase in price of the product or service provided by the hypothetical monopolist is examined. In practice, such a test takes the form of a simulation, where products are added to or excluded from the suspected relevant market according to the (expected) reaction of customers (in the same vein, different *areas* of provision of products are considered). As long as customers leave the hypothetical monopolist and switch to other suppliers in response to such a price increase, the exercise continues and the relevant market broadens; on the other hand, once a "SSNIP" becomes profitable, the boundaries of the relevant market are drawn and the test comes to its end.[158]

The assessment of substitutability is of key importance in defining relevant markets; as will be shown below, however, in multi-sided markets such an analysis is complicated, crucially due to the nature of the SSNIP test. The "standard" method of delineating relevant markets is thus only a first step towards a usable determination of relevant markets in cases where access to big data is sought.

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[156] EUROPEAN COMMISSION, op. cit. 148, para 36-52; the types of evidence mentioned by the Commission for the definition of relevant product and geographical markets, respectively, are not entirely same, but for the purposes of this chapter it is important that, as pointed out in para 45 of EUROPEAN COMMISSION, op. cit. 148: *"the same quantitative tests used for product market definition might as well be used in geographic market definition, bearing in mind that international comparisons of prices might be more complex due to a number of factors such as exchange rate movements, taxation and product differentiation."*

[157] See e.g. Case T-175/12, *Deutsche Börse* [2015] ECLI:EU:T:2015:148, para 133, where the General Court held that *"[i]t is the Commission's task to make an overall assessment of what is shown by the set of indicative factors used to evaluate the competitive situation. It is possible, in that regard, for certain items of evidence to be prioritised and other evidence to be discounted."* See similarly, Case T-699/14, *Topps Europe* [2017] ECLI:EU:T:2017:2, para 82, where the General Court explained further that *"[t]he SSNIP test may also prove unsuitable in certain cases, for example in the presence of the 'cellophane fallacy', that is, the situation where the undertaking concerned already holds a virtual monopoly and the market prices are already at a supra-competitive level, or where there are free goods or goods the cost of which is not borne by those determining the demand."*

[158] EUROPEAN COMMISSION, op. cit. 148, paras 15-17.

4.1.2. Relevant Market Definition in Multi-Sided Markets

This part of subchapter 4.1. is focused on the specific nature of multi-sided markets and its manifestation in the determination of relevant markets. It will outline the key problems with relying on the unmodified methodology and the SSNIP test presented above and discuss changes that could accordingly be made to the SSNIP test without focusing this simulation on a factor other than the price of a product.

A number of important characteristics of online platforms have already been outlined in Chapter 2, two of which are pertinent to discuss here. Firstly, online platforms take advantage of *cross-platform* network effects, a version of indirect network effects. Secondly, the users of some online platform do not have to provide pecuniary payment for the products provided on these platforms, a situation often described as provision of services "for free". These features of online platforms, however, cause difficulties in ascertaining substitutability of products and services according to the currently used methodology.

The SSNIP test, useful as it is in "standard" situations, was nonetheless designed for "single-side" markets and its accuracy is distorted in multi-sided markets. In its unmodified form, the test can reflect the preferences of customers based on the price of the relevant product. However, the position of customers is not solely dependent on prices in any given scenario[159] and this holds true even more for customers on online platforms.

The presence and the strength of cross-platform network effects can lead customers to remain with the hypothetical monopolist even if they are charged a price that would lead them to leave for other suppliers in a "single-side" market. As a result, if such a situation occurs, the simulated increase in price appears profitable. Through the lens of the SSNIP test, if left without adjustments for the multi-sided nature of certain markets, such a move leads to the premature termination of the test and determination of a relevant market within the boundaries drawn at the moment of such, apparently profitable, increase in price. Consequently, even though the customers may be motivated (even to a larger degree than by the price change) to remain with one online platform because of the benefits gained through network effects, the relevant market is in danger of being defined too narrowly.[160]

When services to one side of a market are provided "for free", the situation becomes even more complicated. Firstly, the SSNIP test is formulated by the Commission as a *relative* increase in price, in percentages of about 5% to 10% of the "original" price. Secondly, even if the test could be applied in a way that would cover the "jump" from a price of zero to any higher amount, the

[159] See JONES, SUFFRIN, op. cit. 4, p. 66, 67.
[160] HOLZWEBER, op. cit. 58, p. 570.

accuracy of the test could be undermined by psychological factors associated with such a change.[161] In any way, it is widely accepted that the SSNIP test (or, for the matter, any quantitative test designed to monitor prices, be it through price levels or price elasticity[162]) may fall short of adequately ascertaining substitutability.[163]

Some authors have proposed modifications of the SSNIP test: instead of looking only at the price charged to one group of customers, the prices *across the entire platform* would be taken into account.[164] Effectively, the adjusted simulation would actually take account of the *price structure* that a platform operator has to choose in order to successfully launch and operate the platform, as already explained in Chapter 2. While such an approach goes into the heart of one of the definitions of multi-sided markets, it is not without complications.[165]

The "success" of the SSNIP test in competition analysis can be attributed to at least two features. Firstly, it enables a convenient and relatively straightforward way to determine the substitutability of products (or geographic areas) and in doing so, determine the extent of limitations on the conduct of undertakings.[166] Secondly, the SSNIP simulation is also quite rigorous, relying on a number of quantitative methods developed by economists,[167] especially when compared to some qualitative assessments made in order to examine the characteristics and intended use of certain products, as was the case e.g. in the *United Brands* judgment.[168]

On the other hand, once faced with the complexity of multi-sided markets, these characteristics may not apply anymore. In particular, as has been argued both by those authors who have tried to conduct a quantitative analysis in multi-sided markets and those who appraised the feasibility of modified SSNIP tests in terms of their use in legal analysis, conducting such an experiment requires different types and, in particular, larger amounts of data than in "traditional" hypothetical monopolist simulations.[169] Furthermore, as admitted even by the proponents of modifications to the

[161] KRÄMER, WOLFARTH, op. cit. 155, p. 157.

[162] JONES, SUFFRIN, op. cit. 4, p. 4-5, 61.

[163] HOPPNER, Thomas. Defining Markets for Multi-Sided Platforms: The Case of Search Engines. *World Competition*. 2015, **38**(3), p. 355-356. See also HOLZWEBER, op. cit. 58, p. 569-571, KRÄMER, WOLFARTH, op. cit. 155, p. 157.

[164] See authors mentioned in KRÄMER, WOLFARTH, op. cit. 155, p. 156, 157.

[165] See ROCHET, TIROLE, op. cit. 54, p. 665, and ROCHET, TIROLE, op. cit. 50, p. 990-992.

[166] JONES, SUFFRIN, op. cit. 4, p. 62.

[167] Ibid., p. 64. See also JUST, Natascha. Governing online platforms: Competition policy in times of platformization. *Telecommunications Policy*. 2018, **42**(5), p. 388.

[168] See Case 27/76, *United Brands* [1978] ECLI:EU:C:1978:22, para 31, where the Court decided that "*[t]he banana has certain characteristics , appearance , taste , softness , seedlessness , easy handling , a constant level of production which enable it to satisfy the constant needs of an important section of the population consisting of the very young , the old and the sick.*"

[169] DEWENTER, Ralf, Ulrich HEIMESHOFF and Franczizska LÖW. *Market Definition of Platform Markets* [online]. Helmut Schmidt University Hamburg, Department of Economics Working Paper No. 176, 2017 [cit. 2019-06-25], p. 11. Available at: https://www.hsu-hh.de/fgvwl/wp-content/uploads/sites/572/2017/08/hsu-wp-vwl-176.pdf. See also KRÄMER, WOLFARTH, op. cit. 155, p. 157; HOPPNER, op. cit. 163, p. 356; HOLZWEBER, op. cit. 58, p. 570.

test, since online platforms vary in practice, the assessment of substitutability through such a SSNIP experiment may only apply in certain situations or may differ depending on the nature of various platforms.[170]

In conclusion, the application of the SSNIP test is far from straightforward in multi-sided markets and highly questionable when a product on one side of a market is provided "for free". While in theory, modifications have been proposed, their practical use remains uncertain. It is with this in mind that non-price factors, such as quality or innovation, could be taken into account in defining relevant markets and they are accordingly discussed below.

4.1.3. Competition on Quality in the Definition of Relevant Markets

As suggested above, another suggested response to the shortcomings of unmodified SSNIP tests is the increased focus on *non-price factors* of competition. This part of subchapter 4.1. discusses firstly the overall logic of using such criteria (common for both quality and innovation considerations) and subsequently focuses on the role of quality as a non-price factor and the impact it could have on the definition of relevant markets. Furthermore, competition on privacy and data protection is also discussed in connection to the criterion of quality.

Consideration of non-price factors may involve assessments of competition on quality, innovation or (if considered separately from quality[171]), privacy and/or level of data protection. It is widely accepted that overall, competition enforcement has relied heavily on prices and their assessment in competition analysis.[172] Nonetheless, there is a slow, but continuing trend in the acceptance of non-price factors in enforcement practice; in theory, competition on non-price elements has long been accepted, but even more so, the role of non-price factors of competition was relatively recently highlighted by the Court of Justice in the *Post Danmark I* judgment, where it

[170] FILISTRUCCHI, Lapo, Damien GERADIN, Eric VAN DAMME and Pauline AFFELDT. Market Definition in Two-Sided Markets: Theory and Practice. *Journal of Competition Law & Economics*. 2014, **10**(2), p. 332-333. These authors propose to take account of the transaction/non-transaction market typology, otherwise used to determine the *number* of relevant markets, which is, along with the discussion of this typology, a question dealt with in subchapter 4.2.; for instance, while the authors argue that generally, account of both sides of a market irrespective of the number of such markets needs to be taken, *"in the particular case of a two-sided non-transaction market with only one externality [...] one could safely perform a market definition exercise on that side of the market irrespective of the other side. For example [e.g. in the context of newspapers or platforms where the content side is subsidised by advertising], if one were to find that advertising has no effect on the readers' side of the market, one would need to take into account the advertising market when defining the readers' market, but could safely define the advertising market irrespective of the readers' market."*

[171] For instance, in JUST, op. cit. 167, p. 388, privacy is mentioned separately from quality. Further in the thesis, however, privacy and/or data protection (mentioned in this form mainly because a number of authors cited in this thesis do not distinguish between those two and actually present concerns pertinent to one of them as relevant to the other) is included in the notion of quality.

[172] In fact, a number of statements from various authorities show that pricing has been the foremost factor taken into account by competition authorities, surpassing any other determinants. See JONES, SUFFRIN, op. cit. 4, p. 63.

held that: *"[c]ompetition on the merits may, by definition, lead to the departure from the market or the marginalisation of competitors that are less efficient and so less attractive to consumers from the point of view of, among other things, price, choice, quality or innovation."*[173] The Commission has already on a number of even relatively recent occasions accepted that quality *can* be a factor of competition. On the other hand, competition on factors such as innovation, privacy and/or data protection level is a relatively novel concept that deserves further clarification.

Quality considerations can take two different forms. The first one is an examination of arguments based on quality as a non-price factor of competition which *does not* take the form of a rigorous SSNIP-like test. For instance, in a telecommunications merger case, the Commission undertook a thorough analysis of one notifying party's claim that the merger would enable it to provide higher quality services and thus compete with the market leader.[174] In other cases, it determined separate relevant markets for different products or services based on quality considerations; e.g. the Commission decided that express and deferred delivery of packages were qualitatively different[175] or that gender-differentiated deodorants had different features.[176] In these decisions, quality was considered on a case-by-case basis, through the examination of characteristics and use, and without any structured reasoning, capable of being applied beyond such a case or category of cases with similar products or services, resembling the SSNIP test.

On the other hand, a number of authors have proposed a modification of the SSNIP test to account for quality changes: a so-called SSNDQ test (standing for small, but significant, non-transitory *decrease in quality*). The problem with the use of such a test is, as one OECD paper summarised, that quality, despite being probably the most important non-price factor of competition, *"refers to the flow of service, or the level of value, that consumers derive from a product. It is multidimensional in nature, encompassing a wide variety of factors [and] is a subjective concept, insofar as different consumers may perceive or value certain quality attributes to a differing extent."*[177] Any attempt at designing a SSNDQ test thus faces a difficulty, inasmuch a

[173] Case C-209/10, *Post Danmark* [2012] ECLI:EU:C:2012:172, para 22.

[174] Commission Decision COMP/M.6992 – *Hutchison 3G UK / Telefonica Ireland,* paras 638-640 of the Decision and paras 64, 84-85 of Part III of Annex II to the Decision.

[175] Commission Decision COMP/M.6570 – *UPS/ TNT Express*, paras 192-219.

[176] Commission Decision COMP/M5658 – *Unilever/Sara Lee Body Care,* para 40.

[177] OECD. *The Role and Measurement of Quality in Competition Analysis* [online]. OECD, 2013 [cit. 2019-06-25], p. 5-6. Available at: www.oecd.org/competition/Quality-in-competition-analysis-2013.pdf. As further explained by the paper therein, *"[i]dentifying a single exhaustive definition of quality is a challenging endeavour. Quality is a multidimensional concept that encompasses, inter alia, the durability, reliability, location, design and aesthetic appeal, performance and safety of a product."*

SSNIP test works with the more or less objective factor of price, whereas such a modified test would most likely have to be further adjusted in any given market.[178]

In spite of that, a way towards using such a test is feasible if the criterion of quality is *reduced to a narrower* and therefore *more objective category* (Stucke and Grunes use the example of car safety[179]) or if *normative benchmarks* helping with the structuring of different levels of quality can be found (as is the case of data protection described below).

The use of privacy and data protection as factors of quality (or even their consideration in competition law in itself) is not without controversy. Some authors contest the inclusion of privacy and/or data protection as a non-price factor on the basis of alleged lack of evidence of their pertinence to competition law or because any privacy-related concerns are allegedly outweighed by the utility obtained from services which are provided "for free".[180] Furthermore, a number of statements in the decisions of EU institutions in the past dissociated privacy and data protection issues from competition matters. E.g. in *Asnef-Equifax*, the Court of Justice held that *"any possible issues relating to the sensitivity of personal data are not, as such, a matter for competition law [but] they may be resolved on the basis of the relevant provisions governing data protection."*[181] In *Facebook/WhatsApp*, the Commission similarly claimed that *"[a]ny privacy-related concerns flowing from the increased concentration of data within the control of Facebook as a result of the [acquisition of WhatsApp] do not fall within the scope of the EU competition law rules but within the scope of the EU data protection rules."*[182]

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[178] Even though the idea of a SSNDQ test has its shortcomings, it is still supported as the seemingly most viable route to systematically assess non-price factors. For instance, Mandrescu attempted to construct a SSNIP-like test covering information and attention costs to consumers – a so-called SSNIC test – only to conclude that such a method would not be suitable for practical use due to the difficulty in quantifying attention costs. See MANDRESCU, Daniel. The SSNIP Test and Zero-Pricing Strategies. *European Competition and Regulatory Law Review.* 2018, **2**(4), p. 250-252. On the other hand, Wu (not cited in Mandrescu's paper) has proposed an attention-based SSNIP test simulating increases in the "advertising load" and assessing the reaction of consumers: *"[t]he attentional version of the SSNIP test tries to determine how consumer might react to a small but significant and non-transitory increase in the advertising load for a given product. It might be conducted simply by adding advertising to a product in a non-transitory fashion, and determining whether that addition might make a significant number of consumers spend their time with a different product."* WU, Tim. *Blind Spot: The Attention Economy and the Law* [online]. Columbia Law School Scholarship Archive, 2017 [cit. 2019-06-15], p. 31. Available at: https://scholarship.law.columbia.edu/faculty_scholarship/2029.
It nonetheless remains unclear whether such a method would be workable in practice.

[179] STUCKE, GRUNES, op. cit. 8, p. 261-263.

[180] MANNE, Geoffrey A. and Ben SPERRY. *The problems and perils of bootstrapping privacy and data into an antitrust framework* [online]. CPI Antitrust Chronicle. May 2015 (2), 2015 [cit. 2019-06-25], p. 2-6. Available at: https://www.competitionpolicyinternational.com/assets/Uploads/ManneSperryMay-152.pdf.

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

[182] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, para 164. See also Commission Decision COMP/M.4731 – *Google/ DoubleClick*, para 368, which was criticised by the European Data Protection Supervisor because of the focus on paid services and the lack of recognition of the relevance of "free" digital services: *"[s]ince that case was closed, the evolution of the digital economy has been marked by an explosion of data collection. An equivalent, relevant market analysis today would examine new business models and assess the value of personal information as an intangible asset.*" See EUROPEAN DATA PROTECTION SUPERVISOR. *Preliminary Opinion of the European Data Protection Supervisor: Privacy and competitiveness in the age of big data. The interplay between*

On the other hand, there is growing consensus on that there is no logical reason why privacy and data protection should be excluded from competition law altogether and that these criteria *can be included* within quality as a non-price factor.[183] The German and French competition authorities have similarly claimed that the existence of specific legal instruments on the protection of personal data does not make competition law irrelevant with respect to data protection or privacy issues.[184] Moreover, the Commission itself has apparently changed its stance on the matter in *Microsoft/LinkedIn*, where it explicitly stated that privacy *can* be a factor of competition, while also recognising the relevance of data protection rules for competition law analysis (later confirmed in the *Google/Sanofi* merger decision[185]).[186]

While both competition *on privacy* and competition *on data protection* is thus likely acceptable in competition law, between privacy and data protection, it is seemingly the latter that has a better chance to be used in a SSNDQ-type test.[187] As already mentioned above, data protection is covered by EU legislation[188] giving it a solid *normative benchmark*; there is not only a legally recognised level of protection that needs to be observed when providing services to customers, but also a list of criteria that can, under certain circumstances, be assessed quantitatively. [189] In practice, the scope of purposes for which personal data is processed, the length of storage of such data, the range of situations in which a data subjects has to consent to the collection of personal data etc. are all

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data protection, competition law and consumer protection in the Digital Economy. [online]. European Data Protection Supervisor, 2014 [cit. 2019-06-15], para 57. Available at: https://edps.europa.eu/sites/edp/files/publication/14-03-26_competitition_law_big_data_en.pdf.

[183] For academic consensus, see COSTA-CABRAL, Francisco and Orla LYNSKEY. Family Ties: The intersection of data protection and competition law in EU law. *Common Market Law Review*. 2017, **54**(1), p. 20, and the authors cited under footnotes 45-46. See also STUCKE, GRUNES, op. cit. 8, p. 4-5, 10-11.

[184] BKA/ADC, op. cit. 13, p. 23, 24.

[185] Commission Decision COMP/M.7813 – *Sanofi/Google/DMI JV*, para 69.

[186] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 255 (where the Commission mentioned that EU data protection rules limited Microsoft in accessing and using LinkedIn's full set of data) and in particular para 350. On the other hand, Commission made a proviso in footnote 330, where it claimed that *"[t]he finding of the importance of privacy as parameter of competition [in Microsoft/LinkedIn] is consistent with the Commission's findings in Facebook/WhatsApp […] in relation to consumer communication services."* According to the author, such a conclusion can only be understood as an attempt by the Commission not to undermine its earlier decision in light of the post-merger developments. In particular, once privacy and security features of WhatsApp, which partially made it so popular in the first place, started to be rolled back, a public backlash ensued. See WINDER, Davey. How WhatsApp Merger With Facebook Messenger Puts Your Privacy At Risk. *Forbes.com* [online]. Forbes Media LLC, 2019 [cit. 2019-06-14]. Available at: https://www.forbes.com/sites/daveywinder/2019/01/27/how-whatsapp-merger-with-facebook-messenger-puts-your-privacy-at-risk/#1b578cf14e57.

[187] In fact, the proceedings against Facebook by the German competition authority already point to the relevance of data protection law within non-price factors of competition. See VOLMAR, Maximilian N. and Katharina O. HELMDACH. Protecting consumers and their data through competition law? Rethinking abuse of dominance in light of the Federal Cartel Office's Facebook investigation. *European Competition Journal*. 2018, **14**(2-3), p. 195-215.

[188] 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, 4.5.2016, p. 1–88.

[189] COSTA-CABRAL, LYNSKEY, op. cit. 183, p. 30.

comparable on *some scale*, giving thus the much needed measure of objectivity and rigorousness to a hypothetical data protection-based SSNDQ simulation.

With respect to privacy, such a use is, without a doubt, possible[190] but references would need to be made to rules protecting privacy, from case-law of the Court of Justice to legislation such as the E-Privacy Directive.[191] At the very least, a SSNDQ test could be used for *clear breaches* of such rules; nonetheless, the number of concrete criteria that could be put on a scale the "movement" on which would be used in such a test seem to be lower than in the case of data protection.[192]

In conclusion, focusing on quality as a non-price factor of competition could alleviate some of the problems with the use of the SSNIP test discussed above. At the same time, however, it only seems feasible to construct a SSNDQ test if "quality" can be narrowed down to a more measurable characteristic and crucially, if some normative benchmarks can be found to add more objectivity to any development of such a test. In particular, data protection in EU law provides for a regime that could be used in order to assess substitutability of certain products in light of the level of data protection granted within their provision and this way, a relevant market could be defined in spite of the shortcomings of the SSNIP test.

4.1.4. Competition on Innovation in the Definition of Relevant Markets

Lastly, the issue of innovation and its role in defining relevant markets is discussed. While being covered by the same general reasoning as other non-price factors, it will be shown that in practice, competition on innovation is more difficult to measure than competition on quality.

In contrast to quality (including privacy and/or data protection), the non-price factor of innovation is built on a slightly different background. In short, the concept of *competition on innovation* is constructed on the "disruptive" power of online platforms, that is, their potential to quickly enter and dominate existing relevant markets or even create new markets or at least change the way some markets have worked until such entry. In contrast to innovation as one of the values protected by competition law, in this meaning, innovation, or more precisely, the potential of an online platform to further develop and innovate, is taken as a factor that may influence customers' choices in the same way as price or quality. Because of their disruptive potential through

[190] But see STUCKE, GRUNES, op. cit. 8, p. 263-268, who refer to a method which would not need such normative benchmarks, albeit still in development.

[191] See in particular recitals 1-2 and Art. 1(1) of Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector, OJ L 201, 31.7.2002, p. 37–47. Further cited as "E-Privacy Directive".

[192] One of the criteria that could be used in such a way is the confidentiality of communications in Art. 5 of the E-Privacy Directive and the number of situations in which such communication can be intercepted or the number and/or type of authorities and persons that can gain access to it.

competition on innovation, online platforms are alleged to be not only competing *in* relevant markets, but perhaps because of their ability to dominate markets for certain kinds of services (e.g. search engines, social networking etc., including markets created as a result of their entry into business), they are also competing *for* markets.[193]

The potential of new developments is often overlooked in favour of defining *current* markets. In fact, the Commission itself has admitted that in certain contexts, research and development efforts of undertakings may affect competition in a way that may not be sufficiently recognised;[194] on the other hand, the Commission has explicitly constrained any examination of potential developments to those scenarios where the *"process of innovation is structured in such a way that it is possible at an early stage to identify competing R&D poles."*[195] If such a "progress ladder" in innovation cannot be ascertained, the Commission will not engage in speculation as to the shape and impact of future innovation.[196]

Nonetheless, competition on innovation is invoked by a number of authors as a crucial element of the "new economy".[197] The aims of their propositions are sometimes presented as ensuring a cautious approach of competition law towards negative effects on innovation.[198] In terms of practical use, however, competition on innovation suffers from two main drawbacks.

Firstly, the role of innovation is mostly associated with *positive effects* for consumers and competition; conversely, some practices that *are* innovative in themselves may actually be designed to impair the operation of other undertakings and exclude them from effective competition or to exploit customers for one's own gain.[199]

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[193] GRAEF, op. cit. 12, p. 77, 106-107. See also EDELMAN, GERADIN, op. cit. 55, p. 4-5.

[194] EUROPEAN COMMISSION. *Communication from the Commission — Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements*. OJ C 11, 14.1.2011, p. 1–72, paras 112, 119.

[195] Ibid., para 121.

[196] Ibid., para 122.

[197] GRAEF, op. cit. 12, p. 77, 106-107. CURZON PRICE, Tony and Mike WALKER. Incentives to Innovate v Short-term Price Effects in Antitrust Analysis. *Journal of European Competition Law & Practice*, 2016, **7**(7), p. 476-477. See also the explanation provided in KERBER, Wolfgang. *Competition, Innovation and Competition Law: Dissecting the Interplay.* [online]. Joint Discussion Paper Series in Economics no. 42-2017, 2017 [cit. 2019-06-15], p.5. Available at SSRN: https://ssrn.com/abstract=3051103. Kerber explains that competition has been always understood in terms of the efforts of undertakings to offer lower prices, better quality, and new products; in this meaning, innovation has always been connected to competition law, but *"currently no convincing integrated and well-established concept of competition exists that also includes innovation [in the sense of] 'dynamic competition' [which] today is mostly only used as a synonym for innovation […] with new products or production technologies, but is not based upon a clear theory about the dynamics of competition."*

[198] Compare e.g. MANNE, Geoffrey A. and Joshua D. WRIGHT. Innovation and the Limits of Antitrust. *Journal of Competition Law & Economics.* 2010, **6**(1), p. 154-156. On the other hand, granting such a non-price factor a prominent role in competition analysis may lead to very broad definitions of relevant markets, which would arguably serve best the current incumbents.

[199] See for the concept of "predatory innovation" in SCHREPEL, Thibault. Predatory Innovation: The Definite Need for Legal Recognition. *SMU Science & Technology Law Review*. 2018, **21**(1), p. 22, where such a notion is described in

Secondly, competition on innovation is even further from being sufficiently defined than other non-price factors; most reflections on innovation in EU competition law "stop" at the necessity to consider *at some point* the effects of innovation.[200] On the other hand, the current academic writing on innovation makes a "jump" straight to imagining what kind of vaguely defined markets could be used, without presenting a standard at least remotely close to the rigorousness of the SSNIP test; in this respect Graef suggests e.g. a relevant market "for attention".[201]

Furthermore, while there are some academic analyses of innovation as a non-price factor,[202] in competition law, innovation lacks any normative benchmark comparable to those available to privacy and data protection. This does not mean that the two steps suggested above for the usefulness of the SSNDQ test cannot be replicated to some extent; it is arguably possible to narrow down the criterion of "innovation" to cover only a particular sector or a pre-defined set of developments (in fact, according to the Commission, such an approach is possible e.g. in the pharmaceutical sector[203]). On the other hand, since innovation is a *forward-focused* process, any set of benchmarks (and their relevance) will have to be pre-defined with some degree of uncertainty, which may complicate the development of any SSNIP-like test for innovation.[204]

In summary, while innovation benefits from the same general acceptance as other non-price factors of competition, its use in relevant market definition appears too complicated in practice to be used in foreseeable future. This, on the other hand, does not necessarily apply for sectors where a clear "innovation" path can be ascertained, which, however, is a matter for case-by-case analysis.

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terms of *"all practices that, under the guise of real innovations, are anticompetitive strategies aimed at eliminating competition without benefiting consumers [and which] may take two different forms—the modification of a technological platform and the technical design of a product—which are aimed at removing the compatibility of third party technologies with those of a dominant firm, or at impairing competing technologies operations."*

[200] Compare e.g. EUROPEAN COMMISSION, op. cit. 194, paras 112, 119-122. See also EZRACHI, Ariel. *EU Competition Law Goals and the Digital Economy* [online]. Oxford Legal Studies Research Paper No. 17/2018, 2018 [cit. 2019-06-15], p. 11-13. Available at SSRN: https://ssrn.com/abstract=3191766.
Innovation is also increasingly taken into account in merger analysis; see EUROPEAN COMMISSION. *Competition Policy Brief: EU Merger Control and Innovation* [online]. European Commission, 2016 [cit. 2019-06-15]. Available at: http://ec.europa.eu/competition/publications/cpb/2016/2016_001_en.pdf.

[201] GRAEF, op. cit. 12, p. 107-109. Note also the criticism drawn by Wu, who argues in response to a similar proposal for an attention market that: *"[t]he main problem with [an attention market approach] is that it defines the market so broadly that economists and antitrust authorities would immediately reject the definition as ridiculous in the context of a cash market. Cash is also a limited resource, but that does not mean everything that costs money is a substitute."* See WU, op. cit. 178, p. 30-32. See also EVANS, David. The Economics of Attention Markets. [online]. 2017 [cit. 2019-06-15]. Available at SSRN: https://ssrn.com/abstract=3044858.

[202] PETIT, Nicholas. *Innovation Competition, Unilateral Effects and Merger Control Policy*. [online]. 2018 [cit. 2019-06-15]. Available at SSRN: https://ssrn.com/abstract=3113077.

[203] EUROPEAN COMMISSION, op. cit. 194, para 120.

[204] Some examples of products or services which face constant innovation include online translation services (the quality of which should be measurable and at least hypothetically some set of benchmarks could be derived from the expected translation quality in the future) or so-called digital assistants (where a scale of the quality of responses could be constructed based e.g. on how close does any such service come to succeeding in the Turing test). A further problem with these benchmarks is their objectivity; most of these will have to be made by private persons or bodies (including experts) and will need to be recognised as objective in order to be used. Legislation-based benchmarks could arguably have an easier time in this respect.

4.1.5. The Implications of the Shortcomings of Relevant Market Definition in Multi-sided Markets

In summary, the shortcomings of the SSNIP test in multi-sided markets, as well as the lack of precisely defined "substitutes" for such a method for the non-price factors of quality or innovation, manifest themselves in two ways, firstly, in academic writing, and secondly, in practice, especially in the decisions of the European Commission concerning such markets.

In simple terms, it can be argued that due to the aforementioned deficiencies in legal analysis, academic writing is still mainly concerned with only generally defined methods of defining relevant markets; at best, some authors try to present typologies of platforms that could ease the problem of complexity of online platforms and their varieties.[205] In practice, due to the same difficulties, competition authorities may completely refrain from using any rigorous quantitative methods like the SSNIP test (or any of its modifications) and rely on a case-by-case qualitative analysis of various features of the products and services provided on online platforms.[206]

In the Commission's practice, both quality and innovation have been considered as factors of competition; nonetheless, as presented above, these considerations apply only on a case-by-case basis without the possibility to use such findings in a systematic way. Furthermore, the acknowledgment of these factors does not always come within the part of such decision concerning *the definition of a relevant market*.

In an otherwise important decision in *Google/DoubleClick*, competition on quality is sparsely mentioned and innovation is not considered at all.[207] In *Microsoft/Yahoo*, the Commission admitted that search engines compete on the basis of quality of their results, mentioning relevance to users and speed of returning results as relevant factors, but unfortunately without considering the relevance of results or the speed of result delivery in terms of a quantitatively analysable scale as suggested above.[208] It further recognised competition on innovation between search engines, but

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[205] FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 332-333. Nonetheless, these authors, who use the transaction/non-transaction typology, described in subchapter 4.2, admit that even with this typology, the resulting application of a price structure-oriented SSNIP test is difficult in practice and that their typology is not sufficiently followed in practice. See FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 325.

[206] As noted by Yang: *"competition authorities tried to avoid applying complex econometric methods due to time constraints, lack of proper data or methodical complexity which often comes along with limited robustness and difficulties in interpreting and communicating results."* See YANG, Sung Yoon. *Rethinking Modes of Relevant Market Definition for Multi-Sided Platform: Comparative Research on EU and Korea Cases* [online]. 2018 [cit. 2019-06-15], p. 35. Available at: www.cresse.info/uploadfiles/2018_ps6_pa4.pdf. Mandrescu further notes that *"this final outcome, wherein the most basic tools of competition law practice are the most suitable for the market definition of one of the most recent and innovative business practices, is admittedly rather ironic."* See MANDRESCU, op. cit. 178, p. 256.

[207] Commission Decision COMP/M.4731 – *Google/ DoubleClick*, paras 273,274 or footnote 143.

[208] Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business*, para 101.

once again only referred to *past* innovations as a proof for the high degree of innovation in these markets and refrained from outlining any sequence of future innovations that could be used as a benchmark for competition on innovation.[209]

In both of these decisions, however, quality and/or innovation is only considered once the relevant markets have been defined. In *Microsoft/Skype, Facebook/WhatsApp* and *Microsoft/LinkedIn* the situation is largely the same.[210] Interestingly, in the *Google Shopping* decision, the Commission undertook an analysis of the number of users that could multi-home if Google were to degrade the quality of its general search service and in doing so, turn Google's business less profitable; on the other hand, as is the case with the previous decisions, this simulation was only conducted once the relevant markets had been drawn.[211]

In practice, the analysis of relevant markets with online platforms thus relies on the qualitative assessment of functionalities: e.g. in *Microsoft/LinkedIn*, the Commission identified a relevant market for "professional social networking" (or "PSN") services, distinct from "general" social networking services as well as from "enterprise social networks" (which differ from PSN services in that they function within closed networks or as put in the decision, in a "walled garden").[212]

In conclusion, neither the state of legal writing nor the current state of the Commission's practice brings sufficient clarity or legal certainty for future cases concerning multi-sided markets. Furthermore, as will be shown in two subsequent subchapters, the deficiencies of the quantitative toolkit available to competition authorities present themselves in two other areas.

4.2. Defining One or Multiple Downstream Relevant Markets

As already explained at the beginning of Chapter 4, besides the methods that can be used to define relevant markets (discussed above), one of the additional questions that needs to be answered

[209] Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business*, paras 109-110.
[210] See Commission Decision COMP/M.6281 – *Microsoft/ Skype*, para 81, Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, para 36, Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, para 389.
[211] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, paras 312-315.
[212] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 95-117; it is particularly noteworthy that as a result of the Commission's inquiry *"most respondents indicated that, for a social network currently not substitutable with LinkedIn, it would not be possible to develop and become substitutable to LinkedIn in the short term and without significant investments."* See Commission Decision COMP/M.8124 – *Microsoft/LinkedIn,* para 110. This decision built on Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 45-47, 51-55; in this decision, the Commission held that in particular social networking services have as their defining features the creation of a personal profile and a list of contacts or friends, as well as exchanging messages, sharing information, commenting on others' posts on the network or recommending friends or contacts to others (noting in the process that to qualify as a social networking service, it is not necessary to fulfil all of these functionalities). With respect to the overlap in functionalities with communication services, Commission found that *"social networking services tend to offer a richer social experience compared to consumer communications apps"* and that *"consumer communications apps facilitate instant real-time communication [whereas] messages in social networks, such as comments on a posting, are not normally expected to be responded to in real time."* See Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, para 54.

is the *number* of relevant markets on the downstream level. Since online platforms operate in multi-sided environments and connect multiple groups of customers, there is a question of *how many relevant markets must be defined*; whether one relevant market can encompass the entire operation of the platform or whether each "side" of a multi-sided market must have its own relevant market. Accordingly, this subchapter is devoted to this issue.

The relevance of this question to the issue of seeking access to data through the refusal to supply case-law can be explained in the following way: if an undertaking seeks access to data held by an online platform, the consequences of a refusal will have to be assessed on the downstream market. Such an undertaking may itself be an online platform or it can operate on a downstream market where it competes with an online platform; therefore, better understanding of the probable scope of relevant markets can bring more clarity for potential refusal to supply cases.[213]

With the exception of the clarification provided in the subsequent paragraph, the rest of this subchapter is structured into two parts. Firstly, an overview of the methods devised in academic writing to determine the "correct" number of relevant markets is provided (4.2.1.) and secondly, these methods are analysed in light of the case-law of the Court of Justice and the decision-making practice of the Commission (4.2.2.).

It should be clarified at the outset of this subchapter that some authors turn to the question of the correct number of relevant markets before any other matter pertinent to multi-sided markets.[214] On the other hand, according to the author, it is necessary, at least in terms of the presentation of the peculiarities of multi-sided markets and the adjustments needed in competition law analysis, to firstly understand what methods of determining relevant markets *can* be successfully used and only subsequently turn to concrete issues of market definition. This is even more important in light of the conclusions from the previous subchapter: as shown above, the "classic" quantitative test is not usable in multi-sided markets, at least not without substantial modifications. Furthermore, as also already suggested in the subchapter above, precisely because of the uncertainty surrounding the use of the SNNIP test (and consequently, the rigorousness of the assessment of substitutability), a number of authors have resorted to using typologies of platforms, which, firstly, are not backed by a

[213] Evans suggests that in theory, the definition of one or more relevant markets should not matter as long as the analysis of competitive constraints in either scenario is conducted properly (albeit without further explaining this argument). See EVANS, David S. *Antitrust Economis of Free* [online]. Competition Policy International, Spring 2011, 2012 [cit. 2019-06-07], p. 22. Available at SSRN: https://ssrn.com/abstract=1813193. On the other hand, other authors point out that neither the Commission nor the Court have the means to conduct such a thorough analysis and consequently, the approach chosen in defining one or more markets may have an effect on the outcome of any such case. FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 295-296.

[214] E.g. FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 302; GRAEF, op. cit. 12, p. 81; BAILEY, JOHN, op. cit. 119, p. 303-304.

consensus, and secondly, do not always correspond to decision-making practice, as will be also outlined below.

4.2.1. Methods for Determining the Number of Relevant Markets

As presented at the beginning of subchapter 4.2., it is first necessary to look at the methods which have been devised as solutions to the question of the number of relevant markets in multi-sided settings. In the discussion below, a general overview will be provided and a small number of methods will be analysed more closely. Two of these methods will subsequently be compared to the decision-making and judicial practice in the next part of this subchapter.

The views on the number of relevant markets that ought to be defined and the situations in which a particular approach should be taken vary greatly. For instance, Evans proposes to define one relevant market for a platform as a "business ecosystem", in which a product is provided to one side of the market for free. This approach is suggested mainly to overcome, firstly, the claims that no relevant market can be defined in cases of "free" products[215] and, secondly, to help surmount the complexities associated with the application of the SSNIP test for two separate, but mutually influenced markets.[216] With respect to Google's search engine, it has been proposed by others to combine so-called "organic" search (i.e. the general search service) and search advertising into one relevant market based on the interrelatedness of pricing for both products.[217] As will be further shown, however, this proposal fails in light of the Commission's practice.

Beyond these rather anecdotal proposals, some more complex methods for determining the number of markets have been created.

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[215] EVANS, op. cit. 213, p. 20-21. The argument against defining *any* relevant markets (also because competition law could not apply to such situations) when products are provided at zero-price is mostly associated with references to the case of *Kinderstart v. Google* (cited and explained in EVANS, op. cit. 213, p. 2-3); nonetheless, most authors dealing with EU competition law argue that such an argument is untenable, provided, that there is some form of commercial relationship between the undertaking and the decision to provide a product "for free", e.g. if such provision is actually subsidised by another group of customers. See SOLANO DIAZ, Pablo. EU Competition Law Needs to Install a Plug-in. *World Competition*. 2017, **40**(3), p. 395-396, HOPPNER, op cit. 163, p. 354, or SOUSA FERRO, Miguel. "Ceci n'est pas un marché": Gratuity and competition law. *Concurrences.com* [online]. Institut de la droit de la concurrence, 2015 [cit. 2019-06-15], p. 2-3. Available at: https://www.concurrences.com/en/review/issues/no-1-2015/articles/Ceci-n-est-pas-un-marche-Gratuity-70679.

[216] EVANS, op. cit. 213, p. 22-23.

[217] RATLIFF, James D. and Daniel L. RUBINFELD. Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability? *Journal of Competition Law & Economics*. 2015, **10**(3), p. 517-541. See also a slightly differently formulated method proposed for two sided markets where an undertaking collects some form of transaction fees from both sided of a market in WRIGHT, Julian. One-sided logic in two-sided markets. *Review of Network Economics*, 2004, **3**(1), p. 62. Wright uses an example of rental agencies; he proposes one relevant market in a scenario where the market for "rental agencies for tenants" is controlled by one undertaking, but "rental agencies for landlords" are in fierce competition. In such a situation, he argues against defining separates markets for a platform that collects revenues – so-called pure transaction fees - from both sides simultaneously whenever there is a transaction.

Firstly, it has been proposed to establish the dividing line between determining a single relevant market and multiple ones along the difference between *transaction* and *non-transaction platforms*.[218] The former type is characterised by that the product offered is the possibility to transact through the platform. Such a possibility, however, "*takes the form of two distinct products, one for each side of the transaction, because such possibility needs to be offered to both sides."*[219] Such a finding warrants the establishment of a single relevant market. In contrast, a non-transaction platform does not contain such a strong link; there is, however, a connection between the corresponding multiple markets because of indirect network effects, but not one so strong that it would imply the necessity of defining a single relevant market.[220]

Secondly, an alternative typology has also been suggested, which examines the types of interactions that characterise various platforms and distinguishes between so-called *unilateral matching* and *bilateral or multilateral matching*.[221] Unilateral matching means that one user group wishes to reach another, separate customer group or groups on the platform, but this is not necessarily observable the other way around. Bilateral or multilateral matching occurs where the interaction between customer groups on the platform is sought by all relevant groups that are part of a particular interaction. Depending on a precise case-by-case analysis, one or more markets shall be possible to define with bilateral or multilateral matching occurring on the platform, while with unilateral matching, there will always be multiple relevant markets.[222]

A third proposed method relies instead on the strength of network effects between different customer groups: *"a single market for both platform-sides under investigation may be defined when a sufficient number of participants on one platform-side would switch to another platform if there were a moderate price increase for the products or services on the other platform-side."*[223] Under this method, strong cross-platform network effects make it difficult for an undertaking to treat different sides of its platform independently of each other.[224]

What these approaches share is that any one of them can be used to explain some of the less complicated decisions on the number of relevant markets made by the Commission, especially those

[218] FILISTRUCHI, Lapo. 1. Market definition in multi-sided markets. In: *Rethinking Antitrust Tools for Multi-Sided Platforms* [online]. OECD, 2018, p. 37-54 [cit. 2019-03-07], p. 42. Available at: http://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf.

[219] Ibid.

[220] Ibid. See also FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 296-300.

[221] MANDRESCU, Daniel. Applying (EU) competition law to online platforms: Reflections on the definition of the relevant market. *World Competition.* 2018, **41**(3), p. 464-465.

[222] Ibid.

[223] HOLZWEBER, op. cit. 58, p. 576.

[224] Ibid., p. 575-577.

in which it separated markets for various forms of content from advertising markets. Conversely, each of these methods has its shortcomings.

The second method only brings clarity in one category of cases, while leaving the other, arguably more complex category, subject to further analysis of the necessity of the so-called "intermediary matching service".[225] Nonetheless, besides this slight complication, it appears as usable as the transaction/non-transaction typology. The third method does not in itself bring any typology or a usable scale of network effects, but essentially requires the assessment of cross-platform network effects in any given case. The transaction/non-transaction typology is probably the most advanced, at the very least in that it actually offers straightforward guidance for the complete spectrum of possible cases. Unfortunately, relying on this method in practice is complicated, because its suggestions are not recognised in a series of cases concerning payment cards, which have, all the more, been confirmed by the Court of Justice.

It thus appears that the transaction/non-transaction typology, along with the matching method are the best developed. Consequently, these two methods will be analysed in light of the legal developments concerning the definition of one or multiple relevant markets in multi-sided setting.

4.2.2. Decisions on the Number of Relevant Markets

In the discussion below, the methods chosen in the previous part of subchapter 4.2. will be compared to the current state of EU law practice. Both older decisions and more recent cases will be considered. As will be presented, both of these tools correspond largely to the outcome of numerous decisions across decades of practice; at the same time, however, it will be argued that they depart in their proposed solutions for cases concerning payment cards. Furthermore, it will be shown that while the decision-making practice of the Commission corresponds largely to these typologies, most cases are still decided on a case-by-case basis.

In practice, the Commission has defined separate markets for specific sides of two-sided markets at least since 1990s, where it issued a number of merger decisions concerning newspapers.[226] Here, the Commission has distinguished between "reader" markets (i.e. markets for

[225] As Mandrescu explains, in the latter category, one must take account of the intermediary matching service provided by the platform; if it is indispensable for meeting the demands of each separate customer group, then only one relevant market should be defined. On the other hand, separate markets ought to be delineated when the demand of one or more of the user groups can also be met through other means and the intermediary matching function of the platform is a matter of efficiency or convenience rather than necessity. See MANDRESCU, op. cit. 221, p. 468-469.

[226] See Commission Decision COMP/M.1455 – *Gruner + Jahr / Financial Times / JV*, para 15, where the Commission summarised its decision-making from that time period and uses a similar method (though left without conclusion) to assess the case at hand.

newspapers) and "advertising" markets: *"[i]n the market for newspapers the consumers are the buyers of the newspapers as a source of information. In the advertising market, the consumers are the advertisers who buy advertising space to promote the sales of goods or services."*[227]

In another line of decisions, the Commission thoroughly separated advertising markets from other, "content-based" markets. In *Google/DoubleClick* (with the exception outlined in the following paragraph) and *Microsoft/Yahoo*, the Commission established a separate market for online advertising, with publishers as sellers of online advertising space and prospective advertisers as buyers of that space.[228] The *Facebook/WhatsApp* decision further defined a market for social networking services,[229] independently of any sort of online advertising market, also defined in the decision.[230] In *Microsoft/LinkedIn*, a similar finding came into light independently of the determination of a relevant market for online advertising.[231] Lastly, in *Google Shopping*, the Commission defined a separate relevant market for "general search services"[232] while recognising that: *"[g]eneral search services and online search advertising constitute the two sides of a general search engine platform."*[233] Nonetheless, according to the Commission, a general search engine platform such as Google connects *"distinct but interdependent demands."*[234]

While the cases presented above led to the "separation" of relevant markets within a multi-sided setting, in a relatively recent line of decisions, the Commission has turned to defining single relevant markets based on the *intermediation* of travel services, e.g. in *Booking.com/HotelsCombined*.[235] In *Travelport/Worldspan*, the Commission even undertook a thorough analysis of the network effects characterising the so-called global distribution systems ("GDS") enabling the aggregation of content from various parties involved in the travel industry on one hand and the distribution of such information to travel agents and final consumers on the

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[227] Ibid.

[228] Commission Decision COMP/M.4731 – *Google/ DoubleClick*, para 56, Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business*, para 62; advertising services, in particular digital advertising services, were also analysed in further cases such as in Commission Decision COMP/M.6967 – *BNP Paribas Fortis/ Belgacom/ Belgian Mobile Wallet*, paras 58-68.

[229] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 45-47, 51-55.

[230] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 69-79; according to the Commission, Facebook's *"activities in the advertising sector consist of the provision of online (non-search) advertising services on Facebook's core social networking platform, both on PCs and on mobile devices."*

[231] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, para 152.

[232] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, paras 154-160.

[233] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, para 159, which also states that *"[t]he level of advertising revenue that a general search engine can obtain is related to the number of users of its general search service: the higher the number of users of a general search service, the more the online search advertising side of the platform will appeal to advertisers."*

[234] Ibid.

[235] Commission Decision COMP/M.9005 – *Booking Holdings / HotelsCombined*, paras 28, 69.

other.[236] Crucially, the Commission found that because of the strength of network effects on such an intermediation platform, any relevant product market needed to be defined *solely* around the GDS service, as no substitutes could match its functionalities or lower costs.[237] Similarly, in *Google/DoubleClick*, a market for *intermediation* in online advertising was also defined; however, on a closer look the driving force behind such a decision was not the conscious adoption of any of the methods presented above or a thorough analysis of network effects, but rather the recognition of a case-specific lack of substitute services (including direct selling of advertising space) for a certain category of customers.[238]

All of these decisions are in line with both the transaction/non-transaction typology as well as the matching method proposed by Mandrescu (when the necessity of the intermediary matching function of platforms is taken into account). It thus appears that in practical assessment, the intermediation nature of some services can play a significant role.

In contrast, the transaction/non-transaction theory was clearly not followed in the payment card cases outlined below; the authors of this typology suggested a "market for transactions by payment cards", based on previous practice, which would clearly fall within the transaction market category.[239] The payment cards cases were not explicitly addressed by the author of the matching typology; still, it could be argued that because a market "for transactions by payment cards" entails a bilateral matching function, which, however, is, strictly speaking, not necessary to perform a transaction (i.e. a transaction can still happen through e.g. cash[240]), the matching typology appears to be closer to the result of these cases.

Following an analysis proposing separate relevant markets in the Commission's decision in the *MasterCard* case, the Court upheld such decision and the delineation of relevant markets contained within.[241] MasterCard attempted to propose a definition of a "payment systems" relevant market where both payment card acquirers and issuers jointly co-operated as partners within a "joint

[236] Commission Decision COMP/M.4523 – *Travelport/Worldspan,* paras 9-11. This is also one of the few cases where network effects played a role in defining the quality of a product and could thus be considered in terms of substitutability analysis. Arguably, as presented in Chapter 2, both direct and indirect network effects can have impact on the quality of service and be thus considered also in this way when defining relevant markets; since, however, so many of the existing decisions turn mostly to examining the features of products and services instead of giving larger space to quality, this kind of reasoning is actually rare.

[237] Ibid., paras 12, 58-59.

[238] Commission Decision COMP/M.4731 – *Google/ DoubleClick*, para 68.

[239] Nonetheless, its authors present the judgments of the Court and decisions of the Commission as *inter alia* failures to properly account for the insights gained from economic theories. See FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 295.

[240] Such a conclusion would nonetheless also depend on any quality preferences of both sides; e.g. the speed or convenience of payment by card could not be replicated by cash payment.

[241] Commission Decision COMP/34.579 – *MasterCard*, paras 250-267; Case T-111/08, *MasterCard* [2012] ECLI:EU:T:2012:260 and Case C-382/12 P *MasterCard* [2014] ECLI:EU:C:2014:2201.

venture" payment system, supplying an alleged "joint product" which competed with other such payment systems as well as with non-card payment methods (including. e.g. cash or cheques); MasterCard suggested the name *MasterCard service* for this proposed relevant product.[242] Instead, the relevant markets were separated into separate product markets: an upstream market for card schemes (defined by competition between different card networks, i.e. "inter-system" competition) and downstream *markets* for acquiring and issuing services, respectively (mostly including banks or other financial institutions competing by issuing cards to individuals and acquiring merchants for card payment acceptance).[243]

In reviewing the Commission's decision in a challenge launched by MasterCard, which claimed that the Commission erred in defining a separate acquiring market (crucial for the finding of violation of Art. 101 TFEU in the case), the General Court admitted on the issue of relevant market *"that there are certain forms of interaction between the 'issuing' and 'acquiring' sides, such as the complementary nature of issuing and acquiring services, and the presence of indirect network effects, since the extent of merchants' acceptance of cards and the number of cards in circulation each affects the other."*[244] On the other hand, it crucially held *"that despite such complementarity, services provided to cardholders and those provided to merchants can be distinguished, and, moreover, cardholders and merchants exert separate competitive pressure on issuing and acquiring banks respectively."*[245]

A similar conclusion was reached by the Commission in the *Cartes Bancaires* case (although this case had a much longer route to being finally confirmed by the Court of Justice), where the Commission held that *"the 'two sided' nature of an economic activity by no means signifies that the system concerned constitutes a single market."*[246] It further held, along similar lines as in *MasterCard*, that payment card systems competed with one another (within inter-system

[242] Commission Decision COMP/34.579 – *MasterCard*, paras 250-257.

[243] Commission Decision COMP/34.579 – *MasterCard*, paras 257-267, 278-280; as restated in Case C-382/12 P *MasterCard* [2014] ECLI:EU:C:2014:2201, para 11: *"It is necessary to distinguish between three different product markets in the sphere of open bank card systems: first of all, the 'inter-systems market', in which the various card systems compete; then the 'issuing market', in which the issuing banks compete for the business of the cardholders; and, lastly, the 'acquiring market', in which the acquiring banks compete for the merchants' business. The relevant market for the purposes of the decision at issue is made up of the national acquiring markets in the Member States of the EEA."*

[244] Case T-111/08, *MasterCard* [2012] ECLI:EU:T:2012:260, para 175.

[245] Case T-111/08, *MasterCard* [2012] ECLI:EU:T:2012:260, para 176; the key part of the appeal to the Court of Justice concerning definition of the relevant market fell through as the Court found it ineffective, see Case C-382/12 P *MasterCard* [2014] ECLI:EU:C:2014:2201, paras 159-160.

[246] Commission Decision COMP/38606 – *Groupement des Cartes Bancaires "CB"*, para 180; upheld by the General Court only after a finding of a by-object violation was struck down on appeal by Court of Justice.

competition) to induce financial institutions to opt for membership in their system,[247] while financial institutions themselves competed against each other in the markets for payment card issuance and acquiring of payment and withdrawal transactions.[248] Both in *MasterCard* and in *Cartes Bancaires*, the Commission then subsequently focused on a single market for the assessment of prohibited conduct: the market for acquiring in *MasterCard* and the market for issuing in *Cartes Bancaires*.[249]

In summary, although the practice of the Commission incrementally brings more certainty into the determination of the number of relevant markets, the analysis therein is still dependent on a case-by-case analysis of the features of various multi-sided markets. The abovementioned methods, especially the transaction/non-transaction and matching typologies, do provide a degree of certainty in explaining the outcomes of these decisions, but as the payment cards cases show, they may not always be followed in practice.

These cases also demonstrate that the typologies may point to different results; one more example where the two typologies outlined above may differ in practice is online marketplaces.[250] Nonetheless, it could be convenient to follow both of these methods when defining relevant markets, especially if the result of their application would be the same.

In conclusion, the downstream market level *may* be composed of one relevant market encompassing the entire platform, but that does not by any means exclude defining even a relatively narrow market for a specialised product or service separately from other sides of the multi-sided market when describing multiple relevant markets.

4.3. Relevant Geographical Markets and Online Platforms

This subchapter focuses on the geographical dimension of relevant markets containing online platforms. As already pointed out in the introduction to Chapter 4, the geographic dimension of a relevant market is not an issue that would only concern *downstream* relevant markets; in fact, among the three subchapters of Chapter 4, this one is the least downstream level-specific. At the

[247] And subsequently issue their cards rather than those of competing systems and to ensure that their cards are actually used rather than those of other systems. See Commission Decision COMP/38606 – *Groupement des Cartes Bancaires "CB"*, para 167.

[248] Commission Decision COMP/38606 – *Groupement des Cartes Bancaires "CB"*, paras 165-167.

[249] Commission Decision COMP/34.579 – *MasterCard*, para 329; Commission Decision COMP/38606 – *Groupement des Cartes Bancaires "CB"*, paras 162-164.

[250] An online marketplace is a transaction platform; on the other hand, it also exhibits bilateral matching function. If consumers and retailers can fulfil their needs in a different way (e.g. through direct retail sale), the two methods lead to different outcomes. See, MANDRESCU op. cit. 221, p. 467-468, and FILISTRUCCHI, GERADIN, VAN DAMME, AFFELDT, op. cit. 170, p. 298.

same time, however, the problems with analytical tools discussed in subchapter 4.1. also translate to the subject-matter discussed below.

In contrast to the relevant product market, the notion of the *geographical* relevant market can be said to be less problematic when it comes to online platforms.[251] Most academic writing on the challenges presented by online platforms to relevant market analysis pays relatively little attention to the determination of geographical markets. Nonetheless, in any particular case, the relevant geographical market will have to be established and may have undoubtedly a marked effect on the scope of the relevant market in such circumstances.

Some authors suggested that the likely effect of the definition of a geographical relevant market with respect to online platforms will be to narrow, restrict the relevant market.[252] Others have proposed that there might be an emerging trend within the Commission's merger decisions towards more broadly defined geographical markets.[253]

In practice, in its decisions relevant to the issue of online platforms, the Commission has not yet adopted a discernible pattern in defining the scope of geographical markets; instead, it determines the geographical relevant markets on a case-by-case basis (partially also due to the problems with using e.g. a SSNIP test to determine relevant markets); the *nature* of the service at hand usually influences the scope of relevant markets. In most cases, the Commission decides between dividing of relevant geographic markets along national or linguistic lines and, on the other hand, European Economic Area (hereinafter "EEA") wide market (or sometimes even a global market).

For instance, the Commission has on multiple occasions dealt with the scope of relevant market for online advertising; while some advertisers purchase advertising space on a broader geographic scale, most of them tailor their campaigns to national or linguistically delineated audiences and accordingly seek advertising space. In *Google/DoubleClick*,[254] the Commission held that national preferences, cultural differences, and linguistic factors prevailed in its assessment of the relevant market in online advertising over the increasing cross-border nature of advertising campaigns

[251] In fact, one view summarised the issue of defining geographical markets in that their determination is a "traditional market definition question" and does not raise as many issues as the establishment of the relevant product market in cases of online platforms. As written in the summary of the OECD publication: PIKE, Chris. Part I. Introduction and Key Findings. In: *Rethinking Antitrust Tools for Multi-Sided Platforms* [online]. OECD, 2018, p. 9-34 [cit. 2019-03-07], p. 30. Available at: http://www.oecd.org/daf/competition/Rethinking-antitrust-tools-for-multi-sided-platforms-2018.pdf; also see GRAEF, op. cit. 12, p. 99.

[252] MANDRESCU, op. cit. 221, p. 477.

[253] GRAEF, op. cit. 12, p. 75-76; Graef suggested that the relevant market (based on earlier statements by the Commission) for web search services could be at least EEA-wide. Compare, however, the outcome of Commission's proceedings against Google in Commission Decision COMP/AT.39740 – *Google Search (Shopping)* below.

[254] Commission Decision COMP/M.4731 – *Google/ DoubleClick.*

asserted by Google.[255] This was subsequently confirmed in the *Microsoft/Yahoo*[256] and *Facebook/WhatsApp*[257] decisions.

In contrast, *intermediation* of online advertising was found to be much less dependent on country or language specificities and considering the low technological barriers to expansion of such service to other Member States, the Commission recognised such intermediation as carried out on an at least EEA-wide scale in the case at hand.[258]

In other instances, the Commission ruled on the geographical markets for social networking, consumer communications, online search and comparison-shopping services. In *Facebook/WhatsApp*, the Commission determined that because consumer communications apps were offered under largely uniform conditions, not varying significantly in different Member States,[259] and because social networking services similarly operated only with limited adjustments at Member State level, both of these services were provided on an at least EEA-wide relevant market.[260] In contrast, in the recent *Google Shopping* decision, the Commission held that markets for both comparison-shopping services and online search were divided along national lines, clarifying its open position on the matter with respect to the latter service from *Microsoft/Yahoo*.[261] In these cases, the localisation of use and language barriers played a significant role.[262]

As was the case with the question of the "correct" number of relevant markets in subchapter 4.2., due to the problems with using quantitative methods described in subchapter 4.1., the analysis of relevant geographical markets also largely turns to a case-by-case analysis where platforms are assessed by their features in light of a number of pertinent elements, such as language factors or national specificities. At the same time, however, because of the number of decisions in which

[255] Commission Decision COMP/M.4731 – *Google/ DoubleClick*, paras 82-83.

[256] Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business*, paras 91-93.

[257] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 81-83.

[258] Commission Decision COMP/M.4731 – *Google/ DoubleClick*, paras 86-88; as summarised therein by the Commission: *"geographic expansion to various Member States successfully occurs because the intermediation service does not depend on the different "content" of the intermediated advertisements."* If one was looking for a generalised test for the scope of geographical markets in the analyses conducted by the Commission, the notion of dependency on the "content" of service could serve well as an important (albeit in other decisions not explicitly used) rule. On the other hand, the precise geographical scope of the market for online advertising intermediation was left open in Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business,* para 94.

[259] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 36-37.

[260] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 64-68; while social networking services were provided in different languages, the impact of linguistic differences was (arguably) not as strong as in Commission Decision COMP/M.4731 – *Google/ DoubleClick* and other online advertising decisions (or the decision on online advertising in Commission Decision COMP/M.7217 – *Facebook/WhatsApp*).

[261] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, paras 253-255 and 257-263; see also Commission Decision COMP/M.5727 – *Microsoft/ Yahoo! Search Business*, paras 96-98.

[262] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, paras 254, 259.

geographical relevant markets were determined, at least some clarity exists with respect to the core services provided by online platforms.

5. Relevant Markets for Data as an Input

The previous chapter has mostly dealt with questions important for the definition of relevant market (or markets) on the downstream level in a potential case where access to big data is sought through the refusal to supply case-law of the Court. This chapter, however, turns to the need to define an upstream relevant market on which an online platform must hold a dominant position in order for Art. 102 TFEU to apply.

After a brief introduction and explanation of the importance of defining an upstream relevant market for data provided below (including a clarification on the meaning of the term "market for data"), this chapter is divided into three subchapters. The three subchapters aim to gradually present the picture of data as an input sought on a relevant market and subsequently outline a possible "transition" in focus to big data as the relevant input. Therefore, firstly, the existing practice of the Commission in defining markets for data is outlined (5.1.). These decisions, however, concerned markets where data was usually already traded. With respect to big data, a scenario may occur in which the sought-after data was not already provided to third parties. For such cases, it is necessary to analyse the possibility of defining *potential* upstream markets for data (5.2.) and to discuss the issue of substitutability of big data which is going to be vital for the correct definition of a potential upstream relevant market (5.3.).

Since the aim of this thesis is to analyse the legal possibilities of access to *data* and *big data* in particular, the issues of how data fits in the relevant market analysis and under what conditions is it feasible to speak of a market *for* data need to be addressed. The upstream market is supposed to be the source of data subsequently used by undertakings on downstream markets to provide their services.

In abstract, the determination of an upstream market appears to be the more difficult part of defining relevant markets for refusal to supply cases concerning data as the sought-after input. In practice, the upstream market will be often defined with the use of the request of the undertaking seeking access which will delineate the input sought; however, since such a case concerning big data is yet to come (at least in the practice of the Commission), it is necessary to outline the possible definitions of upstream relevant markets in order to provide more clarity and understanding for such a situation.

Before the actual analysis, one clarification must be made. As already presented in Chapter 2, data is sometimes considered as a type of consideration provided in place of money as payment in cases where a product is seemingly provided "for free". This raises the question whether online

platforms do not actually compete in a very broad relevant market "for users' data". The author disagrees; with the current understanding of the relevance of data, it is indisputable that data serve as an important input, but based both on the considerations in Chapter 2 (e.g. on the role of data in *enhancing,* but not *defining* network effects) and the practice of the Commission and the Court of Justice (where data is always understood as an input necessary for the competition on other markets, which are nonetheless defined by the products and services provided therein and not by competition *for* data), such a conclusion does not have enough support.

Furthermore, any attempt to define a market "for data" other than as an input vital for further competition (as presented below) would turn to the same difficulties and potentially criticism as the suggestions made concerning markets "for attention" discussed above in subchapter 4.1.

5.1. Decisions Concerning Relevant Markets for Data

Firstly, it is necessary to look at the current state of law and decision-making practice of the Commission. As Graef suggests: *"current competition law standards only allow for the definition of a market for data in case the information is actually traded."*[263] Furthermore, on EU law level, there is not yet a case where a market for *personal* data was defined.[264] The Commission has, nonetheless, over the last decade, built a body of decisions which deals with markets where specifically defined data had already been sold and consequently a market for some types of data used as an input on other markets could have been defined.

In a vertical merger decision concerning two undertakings strongly involved in the manufacturing and operation of navigation devices, the Commission identified an upstream market for *compilations of geographic information* about various map features, their additional attributes *and display information*, often stored together in tables rather than digital maps.[265] This data was then subsequently used on the intermediate market for navigation software, which in turn enabled the definition of a market for portable navigation devices.[266] In this case, the Commission considered that producing such a compilation of data – a so-called "map database for navigational purposes" – independently of its existing providers would be very costly and resource-intensive as such data would have to be compiled manually and kept regularly updated.[267]

[263] GRAEF, op. cit. 12, p. 81.
[264] GRAEF, op. cit. 12, p. 259. At the same time, the Commission has issued a material in which the question of refusing access to data is discussed, see EUROPEAN COMMISSION, op. cit. 13, in particular p. 98-104.
[265] Commission Decision COMP/M.4854 – *TomTom/Tele Atlas*, paras 1, 17.
[266] Commission Decision COMP/M.4854 – *TomTom/Tele Atlas*, paras 14-16, 45, 54.
[267] Commission Decision COMP/M.4854 – *TomTom/Tele Atlas*, para 24.

In other cases, the Commission assessed the nature of financial information, especially various forms of market and economic data, and defined several relevant markets for the supply of data including, but not limited to, the provision of *real-time market data* or *historical data*.[268] An upstream market for data was possible to define partly due to the specific nature of such data, but mainly because such data was already traded.

In these decisions, the necessary input was represented by relatively precisely defined data, sometimes essentially taking the form of a database and an upstream relevant market thus could have been defined with relative ease. This conclusion is corroborated by opinions across the whole spectrum of positions: from proponents of a more creative approach to refusal to supply, like Graef,[269] to authors who take an otherwise openly dismissive stance towards giving big data a decisive, law-changing, role in competition analysis.[270] Furthermore, a similar conclusion may be inferred from the opinions of national competition authorities.[271]

In another line of decisions, the Commission examined markets for various forms of *data analytics* products or services. In some of its earlier findings, the Commission mainly dealt with data-related services concerning marketing and so-called audience measurement.[272] In the *VNU/VPP/JV* decision, the Commission even identified an upstream market for television audience measurement ("TAM") services and a downstream market for media buying which *"require[d] TAM data as input."*[273] On the basis of these decisions, the Commission went on to specifically find relevant markets for data analysis services in subsequent cases, concerning e.g. the creation of so-called digital wallet schemes and corresponding services.[274]

In these cases, data analytics was mostly intended by the notifying undertakings to be provided to customers of another service provided by them or their proposed joint venture;[275] only in one of these decisions, *BNP Paribas Fortis/ Belgacom/ Belgian Mobile Wallet,* did the notifying parties

[268] Commission Decision COMP/M.3692 – *Reuters/Telerate*, paras 10, 14; Commission Decision COMP/M.4726 – *Thomson Corporation / Reuters Group*, paras 34-35, 109-110.

[269] GRAEF, op. cit. 12, p. 269.

[270] SIVINSKI, Greg, Alex OKULIAR and Lars KJOLBYE. Is Big Data a Big Deal? A Competition Law Approach to Big Data. *European Competition Journal*. 2017, **13**(2-3), p. 209.

[271] BKA/ADC, op. cit. 13, p. 45.

[272] With "audience measurement" involving the provision of data on individual customers, analysis of purchasing patterns or measuring audiences of specific media. See Commission Decision COMP/M.2291 – *VNU/ACNielsen*, paras 10-12; Commission Decision COMP/M.5232 – *WPP/TNS*, paras 10,14.

[273] Commission Decision COMP/M.3512 – *VNU/VPP/JV*, paras 8-11.

[274] Commission Decision COMP/M.6314 – *Telefónica UK / Vodafone UK / Everything Everywhere / JV*, paras 195-203; Commission Decision COMP/M.6956 – *Telefonica/ Caixabank/ Banco Santander / JV*, paras 21-27; Commission Decision COMP/M.6967 – *BNP Paribas Fortis/ Belgacom/ Belgian Mobile Wallet*, paras 73-83.

[275] Commission Decision COMP/M.6956 – *Telefonica/ Caixabank/ Banco Santander / JV*, para 21; *BNP Paribas Fortis/ Belgacom/ Belgian Mobile Wallet*, para 73; Commission Decision COMP/M.6314 – *Telefónica UK / Vodafone UK / Everything Everywhere / JV*, para 191.

envisage providing the data analytics service separately in the future.[276] Furthermore, in the medical sector, the Commission has also approved the creation of a joint venture between Google and Sanofi, which is expected to be active, among other markets, on a relevant market for data analytics, presumably using healthcare data collected by the joint venture.[277]

Although in these cases, the upstream/downstream relationship between relevant markets was not explicitly identified, it could be argued that data analytics markets could be (especially in proceedings other than the merger procedure, where the scope of relevant markets is often left open) systematically assessed as downstream markets, making it necessary to propose upstream markets for the specific data required on the downstream level, similarly to the *VNU/VPP/JV* decision.

As the practice currently stands, the above presented cases exhaust the examples where a market for data was either defined outright or at least could have been rather easily defined because of the specific focus of related data analytics services.[278] Since the data in the decisions discussed above was either put into what was essentially a form of a database (e.g. in the case of navigational data) or narrowed down to a subset of data from any category (e.g. historical market data as a subset of financial or market data), none of these decisions dealt with a relevant market for big data; this is further corroborated by the fact that no authors cited above have expressly associated these decisions with the notion of relevant markets for big data.

What these decisions show, however, is that the notion of data as an input provided on an upstream market and subsequently used at the downstream level has some support in practice. Furthermore, there are two takeaways for additional discussion of relevant markets for big data. Firstly, it is necessary to look into how data, in any given scenario, is circumscribed; in order to fulfil e.g. the "Four Vs" definition of big data (if taken as the relevant standard for distinguishing "standard" data from big data), it probably should not be possible to place such data into a quickly-implementable and standardised database because due to the volume, variety or velocity of data such a task would be too demanding (a similar argument could be made regarding segmenting of data into subsets). Secondly, it may be indicative (for the purposes of defining a relevant market for big data) to look at the subsequent use of data; arguably, the more data needs to be first analysed, sorted out or inferences need to be made from such data, the more it seems possible to arrive at a

[276] Commission Decision COMP/M.6967 – *BNP Paribas Fortis/ Belgacom/ Belgian Mobile Wallet*, para 74.

[277] Commission Decision COMP/M.7812 – *Sanofi/Google/JV*, paras 44-50. The precise definition of data analysis markets is usually (this decision included) left open because it does not raise sufficient concerns to be examined more thoroughly in the merger procedure. See also Graef's analysis in GRAEF, op. cit. 12, p. 260-261.

[278] As the report by the German and French competition authorities also explains, *"in most merger cases examined by competition authorities in the area of data-related markets, the parties involved used their data solely as an input for their own production, e.g. did not sell their data to third parties, and thus were not active in any possible market for data. As a result, a market for data did not have to be defined."* See BKA/ADC, op. cit. 13, p. 45.

finding of a relevant market for big data, rather than in cases where data is already provided in a format (or a database or even a subset of data) that mostly requires only its implementation into a product.

It nonetheless remains to see whether further cases concerning existing data markets will come; until then, it is necessary to also consider *potential* markets for big data, as is the topic of the following subchapter.

5.2. Defining Potential Markets for Big Data

Defining an upstream relevant market for data (and big data in particular) becomes much more difficult once we leave the relatively safely determined scenarios described above. Since, as proposed at the beginning of this subchapter, refusal to supply cases concerning access to big data, which was not yet provided to any third party, may occur, it is also necessary to determine whether *potential* upstream markets for big data can be defined. As will be shown below, there is some legal authority supporting the definition of such markets, but its application on online platforms is not without complications.

The core problems of defining relevant markets *with respect to online platforms* can be illustrated on the example of a classification of possible refusal to supply cases concerning big data proposed by Graef.[279] According to her, there are two main scenarios: firstly, cases where the new or potential competitor seeks access to big data in order to provide a product that *does not stand in direct competition* to the product of an incumbent platform and, secondly, cases where the data access seeker is aiming at providing a product in *direct competition*, in essence at offering a competing service or platform.[280]

In terms of market definition, the first category of cases can include undertakings providing various form of data analytics services; as discussed above, the definition of a relevant market could then be straightforward. On the other hand, both within the first and the second category of hypothetical cases, a *potential* market for big data not yet traded nor safely definable might have to

[279] GRAEF, op. cit. 12, p. 257-258.

[280] GRAEF, op. cit. 12, p. 257, 258; the example of the first scenario is a provider of a social networking service, which uses data as an important input not only to provide this particular service, but also to analyse data within its own data analytics service, being asked to provide data by the provider of another data analytics service; the example of the second case is a provider of search engine being asked to provide data to the provider of a new search engine service. Compare also the scenarios with respect to access to data discussed in the Commission's material on competition policy for the digital era: EUROPEAN COMMISSION, op. cit. 13, p.101-103.

be delineated.[281] Such a type of market has been already suggested as an analytical tool that may shed light on the position of the most prominent platforms such as Google or Facebook.[282] The possibility of defining such markets in practice is, on the other hand, not straightforward, as will be shown below.

As is often mentioned, according to the *IMS* case, it is strictly speaking not necessary to confine refusal to supply findings to situations where the essential input is already provided to others.[283] In fact, the Court itself stated that *"it is sufficient that a potential market or even hypothetical market can be identified,"* but it also held that *"it is determinative that two different stages of production may be identified and that they are interconnected[.]"*[284]

That finding was based on the relationship between a hypothetical relevant market for a so-called "brick structure" which was essentially a database superimposed on a map that was used to represent regional pharmaceuticals sales data, the supply of which was defining in the downstream relevant market.[285] On the other hand, a significant aspect of the case was that the "brick structure" apparently became the industry standard.[286] The conclusion reached in *IMS* is subject to criticism for being extremely broad; Jones and Suffrin point out that *"there are few production processes that cannot be divided as in IMS if one thinks hard enough[.]"*[287]

In *Microsoft*, the Commission's definition of relevant markets was unusual as it defined a main and a derivative market, while the essential input in that case (interoperability information) was necessary to make a connection *between* the products from both markets;[288] however, because of this peculiarity, it arguably was possible to place interoperability information into some definition of "production processes". It remains unclear what is the precise meaning and weight of this requirement, but the author argues that in order to apply the refusal to supply case law with at least

281 For the first category, such a situation might ensue when an undertaking is seeking to provide a specialised service not already offered by the online platform (e.g. a "productivity" or "fitness" app that requires information on the time an individual has spent on social networking websites, the range of his movement, daily routines etc. that can be derived from data held by such a platform). The second category is much more controversial; it essentially covers cases where one search engine operator would seek to gain access to another search engine operator's data.

282 BAGNOLI, Vicente. *The Big Data Relevant Market* [online]. Concorrenza e Mercato, 2016, Vol. 23, 2017 [cit. 2019-06-11], p. 25-29. Available at SSRN: https://ssrn.com/abstract=3064792; GRAEF, Inge. Market Definition and Market Power in Data: The Case of Online Platforms. *World Competition*. 2015, **38**(4), p., p. 503-504.

283 Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 44-45.

284 Ibid. See also the conclusions in the Opinion of Advocate General in Case C-418/01, *IMS Health* [2003] ECLI:EU:C:2003:537, para 57: *"[t]hus, in applying the case-law cited on the refusal to grant a licence I consider it to be sufficient that it is possible to identify a market in upstream inputs, even where the market is a 'potential' one only, in the sense that operating within it is a monopoly undertaking which decides not to market independently the inputs in question (notwithstanding that there is an actual demand for them) but to assert exclusive rights over a downstream market by restricting or eliminating all competition on that market."*

285 Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 4, 46.

286 Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 6, 12.

287 JONES, SUFFRIN, op. cit. 4, p. 520.

288 Commission Decision COMP/37.792 – *Microsoft*, paras 321-323; GRAEF, op. cit. 12, p. 213-214.

some degree of clarity and legal certainty, an attempt to define such processes ought to be made when defining potential markets for big data.

In contrast to *IMS,* however, the operations of online platforms are much more convoluted once one takes into account their multi-sided nature. Furthermore, it is questionable to what degree can any set of data collected or created by online platforms be compared to a de-facto industry standard, which arguably made the determination of "production processes" in *IMS* feasible. Besides that, most platforms do not simply collect individuals' data from one key service, such as a search engine, but collect data from multiple sources, usually multiple applications or services and only subsequently use this data further.[289] Most academic writing looking into the importance of big data as an input does not yet present a workable method of deconstructing the use of such data or the "production processes" in online platforms sufficiently clearly in order to arrive at a definition akin to the one in *IMS*.

Hypothetically, it could be suggested that an upstream market would be centred around the *collection and storage* of big data from its users by an online platform, while the *analysis* (including, for instance, matching search results to queries based on insights acquired from the analysis of the collected and stored data) would be put on the downstream market.[290] This would make it feasible to present big data as an essential input for subsequent analysis; furthermore, such an approach resembles to a degree the abovementioned line of decisions on data analytics services and one could argue that in doing so, the definition of potential markets follows earlier Commission practice. Even more, this method of approaching the problem of defining relevant markets for big data would follow the two takeaways presented in the previous subchapter.

This approach (albeit not in the context of the abuse of dominant position) was already presented in a few papers, suggesting this sort of definition of inner workings of online platforms.[291] It could also be argued that such a delineation is also in line with the definition of relevant markets in *Facebook/WhatsApp* as well as *Microsoft/LinkedIn,* where the Commission explicitly considered

[289] A good illustration is the account of personal data collected by Google from its users which clearly shows that data can and regularly is collected from multiple services: GOOGLE. Data Transparency. *Google.com* [online]. 2019 [cit. 2019-06-11]. Available at: https://safety.google/privacy/data/.

[290] Interestingly, as a result, online platforms could be seen as entities that primarily collect data from multiple sources and store them, while the use of data comes second. Even though it has been argued above that defining markets such as "markets for attention" is without sufficient support, this paradigm would suggest that it may be possible to think about similarly broad "markets for data", if such an approach attracts more authority from the Commission and perhaps the Court of Justice.

[291] The closest any academic writing known to the author gets to such a finding is Bagnoli (cited above), who presents a basic attempt to understand the "relevant market for data" as the aggregate of several types of conduct, namely big data collection, big data storage and big data analytics. Nonetheless, he only presents these suggestions in the course of a reflection on the *Facebook/WhatsApp* merger case and not with respect to abusive conduct under Art. 102 TFEU. See BAGNOLI, op. cit. 282, p. 25-29. For an earlier example, see also LUCHETTA, Giacomo. Is the Google Platform a Two-Sided Market? *Journal of Competition Law & Economics*. 2014, **10**(1), p. 185–207.

a hypothetical market for data relevant for advertising purposes.[292] Furthermore, the latter decision also supports such an approach and even corresponds to the conclusions made in the previous subchapter with respect to the provision of so-called customer relationship management (CRM) software (further discussed in Chapter 7 in connection to the notion of indispensability). The Commission discussed the functionalities of such software, which could "leverage" a very wide variety of data (from customer data and activity to social networking data or e-mails) and subsequently analyse such data using "machine-learning" and "predictive" analysis,. i.e. going much further than simple implementation of data into a product. In order to provide such an analysis, the software requires datasets of sufficient variety, the availability of which was an issue in the decisions. The Commission thus also discussed a *"hypothetical market […] for the provision of data for the purposes of [machine-learning] in CRM software solutions."*[293]

In conclusion, it appears that defining hypothetical, potential upstream relevant markets for big data is legally feasible on the basis of the *IMS* ruling; at the same time, however, such an approach is controversial and will require careful application. It is proposed to always attempt to describe the "production processes" within an online platform in order to arrive at a reasoning similar to *IMS* and thus provide some legal clarity and predictability to the process of defining relevant markets. A potential method of doing so with respect to big data is to follow the collection, storage and analysis of data and delineate relevant markets according to this conduct.

5.3. Substitutability in Potential Markets for Big Data

Even if it is legally permissible to define a potential relevant upstream market for big data, as suggested above, such an exercise is not without complications. Accordingly, the issue of substitutability of big data and its impact on relevant market definition is discussed below. Furthermore, this assessment also serves as a basis for the findings in subsequent chapters, where the outcome of some scenarios often depends on the extent to which substitutability is defined at this stage of competition analysis.

The proponents of determining potential markets for data (including markets for big data) often invoke the importance of data as an input for various products and services and, as a result, suggest the possibility to segment data into markets for e.g. search data, social network data or e-commerce

[292] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 184-189. To the extent data was recognised as an input and its availability was discussed. Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 179-180; a hypothetical relevant market for data was also mentioned in Commission Decision COMP/M.7023 - *Publicis / Omnicom*, para 11, but was not considered any further.
[293] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn,* paras 196-197, 253-254.

data, instead of relying on one entirely generally defined market for "online data".[294] They thus seek to deal with the problem of *sufficiently precise description* of data on a potential upstream market. However, in all of the successful refusal to supply cases brought before the Court, the input sought by the applicant undertaking was relatively clearly defined, as was also the case in the decisions of the Commission presented in subchapter 5.1.[295] At the same time, however, it seems that arriving at such a precise description is going to be difficult in the case of big data, as discussed below.

While the importance of big data as a crucial input cannot be denied in any of these sectors, it is hard to see what exactly is the content of e.g. "search data" in order to firstly define a relevant market and subsequently provide access to such data to other undertakings. Is "search data" all of the data Google holds on all of its users' search queries and search results or is the data necessary to compete in the search engine relevant market instead only a limited segment of the search queries and results?[296] Furthermore, the relevant data might not be in practice limited only to search queries and results and can even comprise additional data collected from users and used to personalise their search results.[297] Going even further, it might turn out that the indispensable input that enables the operation of a competitive search engine is a number of insights or know-how *derived* from data.

Defining big data as the relevant product will thus require a thorough and case-by-case assessment of the competitive constraints that help to delineate relevant markets, i.e. supply- and demand-side substitutability.[298] In ascertaining substitutability, some key properties of big data will have to be examined, in particular the volume and variety of data (in order to reach a conclusion e.g. on how large and varied datasets are actually seen as substitutable by the undertakings on the downstream market), although other characteristics, such as the velocity of data may also come into play (e.g. for downstream markets centred around data analytics services, it can be argued that having access to continually updated data may be very important).

While such an assessment will have to be conducted in any potential case, deriving any general conclusions on potential markets in this sense turns difficult because it requires insight into the actual use of data on downstream markets. In its decisions concerning advertising data, the

[294] GRAEF, op. cit. 12, p. 262.

[295] Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 4, 7, 10, 12, including the fact that such a specific database became the industry standard in Germany; Opinion of Advocate General in Case C-418/01, *IMS Health* [2003] ECLI:EU:C:2003:537, paras 4, 7. See also Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, para 37.

[296] See in this respect the inference made in BKA/ADC, op. cit. 13, p. 48 with respect to the *Microsoft/Yahoo* decision.

[297] Applied to a hypothetical market for online (general) search services, if the use of additional data for personalisation was found determinative for the scope of relevant markets, Google and e.g. DuckDuckGo (which refrains from using other user-provided data than search queries) would not be placed on the same relevant market. Furthermore, it is possible to distinguish data according to the way of its collection; data thus may be e.g. volunteered, observed or inferred, i.e. collected with varying level of effort on part of the undertaking; see EUROPEAN COMMISSION, op. cit. 13, p. 101.

[298] EUROPEAN COMMISSION, op. cit. 148, paras 13-14.

Commission has so far mainly worked with the notion of "data usable for advertising purposes", pointing to a very broad definition of any upstream relevant product market, but also, in *Microsoft/LinkedIn*, it discussed the idea of data necessary for the development and operation of machine-learning functionality in a CRM software product, an advanced form of analysis that requires datasets that could fit under the description of big data.[299] On one hand, the case of advertising data represents exactly the problems with description and substitutability outlined in this subchapter (as ultimately, since the notion of "data relevant for advertising purposes" was not narrowed down in any of the decisions, the Commission dismissed all concerns about the concentration of such data as also discussed in further chapters); on the other, the case of CRM software points to a potential way to dealt with these issues.

The approach of the Commission in *Microsoft/LinkedIn* arguably corresponds to the findings of previous subchapters and may present a reasonable approach towards defining relevant markets for big data. It not only takes into account (in the author's interpretation) the category of data (not being too narrowly circumscribed but also not entirely without boundaries) and its subsequent use (in terms of analysis, not only implementation), thus following the takeaways from subchapter 5.1., but also follows the method looking at the collection, storage and analysis of big data outlined in subchapter 5.2, thus also corresponding to the possible solution to the issue of defining potential markets discussed therein. Finally, while the Commission only examined a hypothetical market, it nonetheless was able to make conclusions (albeit very brief) on the substitutability and indispensability of such data (largely led by the need to use it for the purposes of machine learning; further discussed in Chapter 7). At the same time, the problems with delineating relevant markets for big data are still significant and it remains to be seen whether further cases will follow and expand on the thinking in *Microsoft/LinkedIn*, e.g. with respect to search data or social networking data.

In conclusion, the definition of an upstream market *for* big data is so far complicated by the fact that existing EU law practice brings only a limited degree of clarity on such definition. In terms of *potential* markets for big data, two problems arise with the tasks of describing "production processes" within online platforms and with the precise description of data provided on an upstream market. At the same time, it appears that defining a potential market for big data is possible. Unfortunately, until an actual case where access to big data will be sought (unlike the considerations presented so far, which came from merger decisions) is brought forward, it is possible to present only limited clarifications on the definition of upstream markets in such a setting.

[299] See e.g. Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, para 166 or Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 176, 253-254.

6. Establishing Dominant Position in a Relevant Market for Big Data

The previous chapter led to the outline of the relevant markets that need to be defined in refusal to supply cases. As was noted in the previous chapter, the definition of a relevant market, particularly of the upstream relevant market, has immense influence on the next steps of the analysis in such situations. In order to find an infringement of Art. 102 TFEU, it has to be first established that an undertaking holds a dominant position on a relevant market; only subsequently can the abusive nature of the conduct of such an entity be analysed.[300] In terms of the refusal to supply case-law, this entails the finding of a *dominant position on the upstream market*. When access to big data is concerned, an undertaking will thus have to be dominant on a market *for* big data and, as was the issue with the definition of relevant markets, the determination of a dominant position on such a market is again not straightforward.

According to the guidance prepared by the Commission, in which it summarised past findings and developed them into a concise communication, the factors used to ascertain dominant position fall into three categories.[301] Firstly, it is the *market position* of undertakings on the relevant market, standardly expressed through *market shares*. Secondly, *barriers* to the expansion of current competitors and entry of potential ones are considered.[302] Thirdly, competitive constraints can also result from the so-called *countervailing market power*, expressed through the bargaining strength of the dominant undertaking's customers.[303] While a number of concrete aspects of competition will be examined in any given case and the finding on the existence of a dominant position will be made on the basis of all of such factors, it is suggested that the first two elements outlined above will have essential influence on the determination of a dominant position in a market for big data.

This chapter is therefore structured as follows. Firstly, the concept of a dominant position in EU law is explained (subchapter 6.1.). Further on, the subsequent subchapters deal each with one of the main factors used to assess market power and ascertain dominant position, i.e. market position (subchapter 6.2.) and barriers to entry and expansion (subchapter 6.3.).[304]

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[300] As the Court of Justice explained in the *Continental Can* judgment, which became a regular reference point for further cases, *"for the appraisal of [a] dominant position […], the definition of the relevant market is of essential significance, for the possibilities of competition can only be judged in relation to those characteristics of the products in question by virtue of which those products are particularly apt to satisfy an inelastic need and are only to a limited extent interchangeable with other products."* See Case 6/72, *Continental Can* [1973] ECLI:EU:C:1973:22, para 32.

[301] EUROPEAN COMMISSION, op. cit. 116, paras 12-18.

[302] Thus taking account of, in contrast to the definition of a relevant market, potential competition. See EUROPEAN COMMISSION, op. cit. 148, para 24.

[303] EUROPEAN COMMISSION, op. cit. 116, para 18.

[304] The assessment of countervailing buying power is still rather limited with respect to digital markets; on the other hand, if such and assessment is made in practice, it may take into account the position of a "data buyer" with significant

6.1. The Concept of a Dominant Position in EU Competition Law

This subchapter aims to outline the meaning of the concept of a dominant position in EU law and the consequences that result from the finding of such a status, in particular the limitations on the conduct of undertakings.

The *legal* concept of a dominant position stems from the *economic* notions of "position of economic strength" or "substantial market power".[305] However, it does not in itself have a legal definition provided by Art. 102 TFEU or EU secondary law. Furthermore, the idea of a dominant position in EU law is a "binary" one: an undertaking either *is* a in a dominant position or it *is not*; in contrast, market power is a matter of *degree*.[306] It thus falls to the Court to outline the concept and provide a way to connect the legal term to the economic reality.

Under settled case-law of the Court that has as its basis the judgments in *United Brands* and *Hoffmann-La Roche*,[307] a dominant position is understood as the power of an undertaking to prevent effective competition from being maintained by virtue of its ability to *behave*, to an appreciable extent, *independently* of the usual competitive constraints facing an entity operating on a market, i.e. its competitors, consumers and ultimately its consumers. Such a position does not preclude the existence of *some competition* on a relevant market. Nonetheless, it enables a dominant undertaking to have an appreciable influence on the development of such competition (and to disregard it as long as such disregard does not work to the dominant undertaking's detriment).[308] As this definition shows, the Court chose a definition that can encompass a variety of situations, but which, as a result, requires a thorough case-by-case analysis of the position of any such undertaking.

As a result of the finding that an undertaking holds a dominant position on a relevant market, such an entity is subject to what is called the *special responsibility* of the dominant undertaking.[309] Consequently, EU law effectively discriminates against dominant undertakings and prohibits them from conducting themselves in a certain way; actions, which are otherwise permitted to non-dominant undertakings, are legally forbidden.[310] This does not mean that the dominant position

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economic power, analogically to situations such as the position of Apple (through its iTunes service) in terms of "purchasing" music in the case Commission Decision COMP/M.3333 – *SONY/ BMG*, para 146.

[305] BAILEY, JOHN, op. cit. 119, p. 869.

[306] WHISH, BAILEY, op. cit. 29, p. 187.

[307] Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36.

[308] Case 27/76, *United Brands* [1978] ECLI:EU:C:1978:22, paras 65-66; Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36, paras 38-39; JONES, SUFFRIN, op. cit. 4, p. 286-287.

[309] See JONES, SUFFRIN, op. cit. 4, p. 357-358.

[310] As the Court held in *Michelin, "a finding that an undertaking has a dominant position is not in itself a recrimination but simply means that, irrespective of the reasons for which it has such a position, the undertaking concerned has a special responsibility not to allow its conduct to impair genuine undistorted competition on the common market."* See

itself is a problem in the eyes of the law,[311] but undertakings that manage to achieve it are restricted to so-called *competition on the merits*. This responsibility manifests itself in that dominant undertakings must refrain from abusing their dominant position.[312] In practice, various forms of behaviour are consequently placed "outside" of the scope of competition on the merits. For instance, in *Google Shopping*, the Commission explained that: *"it is not novel to find that conduct consisting in the use of a dominant position on one market to extend that dominant position to one or more adjacent markets can constitute […] a well-established, independent, form of abuse falling outside the scope of competition on the merits."*[313]

In light of the above, it is clear that the finding of a dominant position has serious consequences for the freedom of action of any undertaking in such a position. Furthermore, the relevant markets and conditions of competition on them can in practice greatly vary. This means that the methods of determining dominant position, briefly outlined above and dealt with in detail in subsequent subchapters, are of paramount importance because their use in competition analysis can determine whether an undertaking will be subject to the limitations discussed.

6.2. Analysing Market Position on a Relevant Market

As presented above, the second subchapter is devoted to the analysis of market position, the first key factor used in assessing market power mentioned by the Commission. As this subchapter will explain, the most common way of determining market position is through the use of *market shares*; it will thus aim at explaining the issues with using market shares in a relevant market for big data. Furthermore, the way dominant position was ascertained in past refusal to supply cases will also be discussed. The eventual goal of this subchapter is to suggest an appropriate method that

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Case 322/81, *Michelin* [1983] ECLI:EU:C:1983:313, para 57. This position is commonly repeated in the case-law of the Court; see e.g. Case C-209/10, *Post Danmark* [2012] ECLI:EU:C:2012:172, para 23 or the judgment in Case C-280/08 P, *Deutsche Telekom* [2010] ECLI:EU:C:2010:603, para 203, according to which a dominant undertaking that adopts pricing practices contrary to the prohibition of abuse of dominant position *"must, in view of its special responsibility under Article 82 EC [i.e. today's Art. 102 TFEU], be in a position itself to determine whether its pricing practices are compatible with that provision."*

[311] As summarised in Case C-209/10, *Post Danmark* [2012] ECLI:EU:C:2012:172, para 22: *"not every exclusionary effect is necessarily detrimental to competition[.] Competition on the merits may, by definition, lead to the departure from the market or the marginalisation of competitors that are less efficient and so less attractive to consumers."*

[312] On the other hand, some authors claim that because of the specific nature of the "digital economy", anti-competitive practices (such as impeding multi-homing) of undertakings in a "superior" but not yet dominant position should also be taken out of the scope of competition of the merits. See e.g. SCHWEIZER, Heike. Modernising the law on abuse of market power. *Oxford Business Law Blog* [online]. Oxford University, 2018 [cit. 2019-06-21]. Available at: https://www.law.ox.ac.uk/business-law-blog/blog/2018/10/modernising-law-abuse-market-power.

[313] See Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, para 649. See also e.g. Case C-280/08 P, *Deutsche Telekom* [2010] ECLI:EU:C:2010:603, para 177, where the Court explained that EU competition law: *"prohibits a dominant undertaking from, inter alia, adopting pricing practices which have an exclusionary effect on its equally efficient actual or potential competitors [and] thereby strengthening its dominant position by using methods other than those which come within the scope of competition on the merits."*

could serve as the "first step" of market power analysis with respect to a market *for* big data. In doing so, it will also attempt to reflect on the properties of big data and their place in the assessment of market power.

This subchapter is therefore further divided into four parts discussing at the outset the use of market shares in general (6.2.1.) and the establishment of dominant position in past refusal to supply cases (6.2.2.). It subsequently turns attention to the modifications that need to be made to the "traditional" use of market shares, including the feasibility of its use (6.2.3.), and finally analyses the methods of ascertaining the availability of data (6.2.4.).

As a preliminary point, it must be emphasised that while the analysis of market position and in particular market shares of undertakings on a relevant market for big data is vital for any such case, it appears in light of the subject matter that is going to be discussed in the next subchapter (i.e. barriers to entry and the claims about low costs of obtaining data) that only a finding of very high market shares (on a near-monopoly level) will point to a dominant position in such a setting.

6.2.1. Market Shares as a Tool of Assessing Market Position

Market shares are the most common way to determine market position. As the Commission states, market shares are "a useful first indication" of the structure of the relevant market and of the (relative) importance of different undertakings present therein.[314] Their relevance and weight is thus discussed below. At the same time, their use is not without complications, even more so in the so-called dynamic markets and accordingly these are also discussed.

The most cited precedent for the relevance of market shares in the finding of dominant position comes once more from the *Hoffman-La Roche* case, where the Court explained that *"an undertaking which has a very large market share and holds it for some time […] is by virtue of that share in a position of strength which makes it an unavoidable trading partner and which , already because of this secures for it, at the very least during relatively long periods , that freedom of action which is the special feature of a dominant position.*"[315] The relevance and value of market shares in the analysis of market power can be proved by the sheer number of judgments and decisions that have dealt with the meaning of variously high market shares; effectively, the Court with the

[314] At the same time, however, it adds that when interpreting market shares, it will also consider, among others, the conditions on the relevant market and its dynamics. See EUROPEAN COMMISSION, op. cit. 116, para 13.
[315] Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36, para 41.

Commission have developed a scale of market share percentages and the conclusions that can be drawn from them.[316]

For the highest market shares, the following conclusion applies: "*although the importance of the market shares may vary from one market to another the view may legitimately be taken that very large shares are in themselves, and save in exceptional circumstances, evidence of the existence of a dominant position."*[317] Past cases have shown a number of undertakings which exceeded the 90% threshold; these market shares have been described as "quasi-monopolies" or through the position of "super-dominance".[318] Market shares between 70% and 80% have been held to be "in themselves" a clear indication of dominance.[319]

Furthermore, a 50% market share is understood to create a rebuttable presumption of dominance,[320] while market shares below 40% are highly unlikely to create a dominant position (and such findings are extremely rare).[321] Furthermore, it is also crucial, especially with market shares close to the 40% threshold, to take account of the market shares of competing undertakings; market shares that do not of themselves and in the absence of exceptional circumstances present an indication of dominance may have different consequences depending on the market shares of other undertakings.[322]

At the same time, in spite of the usefulness of using market shares, a great number of authors caution against the over-reliance on these indicators.[323] In particular, it has been pointed out that market shares only cover the competitive constraints presented by *actual* competitors or that market

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[316] See the reflection in JONES, SUFFRIN, op. cit. 4, p. 323-326, BAILEY, JOHN, op. cit. 119, p. 874, or WHISH, BAILEY, op. cit. 29, p. 47-49.

[317] Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36, para 41.

[318] WHISH, BAILEY, op. cit. 29, p. 48, 195. See e.g. Case T‑66/01, *ICI* [2010] ECLI:EU:T:2010:255, paras 258-259. Furthermore, in the *Google Shopping* decision the Commission identified Google's market share to be above 90% over all national markets for the so-called general search services and accordingly held that Google was in a dominant position on such a market. See Commission Decision COMP/AT.39740 – *Google Search (Shopping),* para 685. On a slightly different note, market shares of 100%, i.e. monopolies, have been defined in the past, but remain rather rare. See e.g. Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36, para 74.

[319] See e.g. the case-law cited in Case T‑66/01, *ICI* [2010] ECLI:EU:T:2010:255*,* para 257.

[320] See Case C-62/86, *AKZO* [1991] ECLI:EU:C:1991:286, paras 58-62 and the interpretation by Whish and Bailey in WHISH, BAILEY, op. cit. 29, p. 48.; similarly, JONES, SUFFRIN, op. cit. 4, p. 323.

[321] EUROPEAN COMMISSION, op. cit. 116, para 14.

[322] BAILEY, JOHN, op. cit. 119, p. 875.

[323] See BAILEY, JOHN, op. cit. 119, p. 872; WHISH, BAILEY, op. cit. 29, p. 43. A particularly detailed analysis of market shares was brought by Kaplow, who explained that a number of the problems associated with the use of market shares (some of which are outlined in this subchapter) come from the fact that competition analysis requires the answers to two questions: firstly, how much market power is actually present in a relevant market and secondly, how much of this market power is legally relevant as a position of legally recognised dominance. Kaplow argues that the use of market shares does not in itself answer any of these two questions, be it the former *empirical* or the latter *policy* question. See KAPLOW, Louis. Market Share Tresholds: On the Conflation of Empirical Assessments and Legal Policy Judgments. *Journal of Competition Law & Economics*. 2011, **7**(2), p. 252.

shares do not necessarily reflect the concrete competitive processes and decisions taken by undertakings on relevant markets.[324] Additionally, as suggested above by the reference in the *Hoffmann-La Roche* ruling to "some time" or "relatively long periods" of time during which a market position is enjoyed, the *period of time* across which a market share is held by an undertaking can have influence on the implications taken from such an indication.[325] These points are even more emphasised when it comes to so-called dynamic markets, i.e. markets which are emerging, fast-growing or prone to rapid changes, as shown below.[326]

A number of these considerations came into practice in the assessment of market power in consumer communications markets: e.g. in *Facebook/WhatsApp,* the Commission described consumer communications as *"a recent and fast-growing sector which is characterised by frequent market entry and short innovation cycles in which large market shares may turn out to be ephemeral."*[327] Even prior to this decision, the Commission decided that in *Microsoft/Skype*, in spite of Microsoft obtaining a combined market share between 80% and 90% in certain markets,[328] high market shares in consumer communications provided only "limited" indication of competitive strength precisely because of the dynamic nature of such sector.[329] The same reasoning was then upheld by the Court of Justice in response to a challenge against the Commission's decision approving the transaction, noting that *"[i]n such a dynamic context, high market shares are not necessarily indicative of market power.*"[330]

This judgment lead some authors to point out a potential problem in the enforcement of EU competition law in dynamic markets, inasmuch the statements of the Court in *Cisco Systems* (one of which is reproduced in the preceding paragraph) could also be interpreted as dismissing the relevance of market shares in such situations altogether.[331] In such a circumstance, the analysis of

[324] BAILEY, JOHN, op. cit. 119, p. 872.

[325] EUROPEAN COMMISSION, op. cit. 116, para 15.

[326] See e.g. BKA/ADC, op. cit. 13, p. 29-30; KRÄMER, WOLFARTH, op. cit. 155, p. 158-160.

[327] Commission Decision COMP/M.7217 – *Facebook/WhatsApp,* para 99. Nonetheless, arguments of this kind are not novel; in Commission Decision COMP/37.792 – *Microsoft*, the company submitted a proposition that undertakings active in the "new economy" faced a particular form of competition: *"[a] product which might presently give the appearance of being in a strong or dominant position in the market would in fact be at constant risk of being displaced by a completely new product, which would currently not be a demand substitute in the traditional sense. By extension, the implication was that there would be no position of entrenched market power in such industries."* See Commission Decision COMP/37.792 – *Microsoft,* para 466.

[328] Commission Decision COMP/M.6281 – *Microsoft/ Skype*, para 109.

[329] Ibid., paras 78-80.

[330] Case T‑79/12, *Cisco Systems* [2013] ECLI:EU:T:2013:635*,* para 69.

[331] LAMADRID, Alfonso. A comment on Case T-79/12 Cisco Systems and Messagenet v European Commission (Microsoft/Skype). *Chillin' Competition* [online]. 2014 [cit. 2019-06-17]. Available at: https://chillingcompetition.com/2014/05/12/a-comment-on-case-t-7912-cisco-systems-and-messagenet-v-european-commission-microsoftskype/. Although this account of the case was presented by a lawyer who represented the unsuccessful challengers, a similar view was adopted in SOLANO DIAZ, op. cit. 215, p. 401.

market power would be deprived of the "useful first indication" provided by market shares.[332] On the other hand, as the report by the German and French competition authorities suggests, any arguments concerning "dynamic competition" should be assessed on a case-by-case basis, keeping thus market shares as the default first indication of market power in future cases.[333] Such a conclusion seems reasonable; market shares should not be taken as absolute and irrefutable proof of market power, but should be regularly taken into account with the possibility to disprove the conclusions drawn from them further on in the process of determination of dominant position.

In summary, in practice, market shares are usually a valuable tool of assessing the market position of undertakings, albeit not without reservations to the over-reliance on them, especially in the context of dynamically evolving markets. In the following part of subchapter 6.2., however, it will be shown that in some of the past refusal to supply cases, the explicit consideration of market shares was not even necessary and that the dominant position in such situations was based on factual findings.

6.2.2. Market Position in Refusal to Supply Cases

This part of subchapter 6.2. outlines the ways the Commission and the Court have dealt with the issue of determining dominant position when presented with anticompetitive refusals to supply. It shows that in a number of cases, the dominant position was clear in light of the factual circumstances. On the other hand, as will be presented subsequently in further parts of subchapter 6.2., the determination of a dominant position on a relevant market for big data is more complicated that the decisions presented below.

In the Commission's original decision in *Magill,* the Commission turned to an ad-hoc examination of the factual and legal state of affairs. The Commission pointed out that, irrespective of any intellectual property rights on part of the allegedly dominant undertakings, *"broadcasting organizations have a factual monopoly over the production and first publication of their weekly listings [...] because programme listings are a by-product of the programme scheduling process, carried out and known only to the programme planners themselves."*[334] It was only on top of this

[332] Ibid.

[333] BKA/ADC, op. cit. 13, p. 29-30.

[334] Commission Decision IV/31.851 - *Magill TV Guide/ITP, BBC and RTE*, para 22, where the Commission additionally clarified that *"the listings only become marketable products when the schedules themselves are finalised (subject to last minute changes), a short time before transmission [and in light of the limited possibility to obtain such schedules and the impossibility of replicating them, third] parties are therefore in a position of economic dependence which is characteristic of the existence of a dominant position."* In terms of overall market power analysis, legal barriers are most often taken into account within the assessment of barriers to entry and expansion; here, they merely added to the already factually determined dominant position. See EUROPEAN COMMISSION, op. cit. 116, para 17.

finding that the Commission also added that the broadcasters' position was strengthened by the protection granted by copyright law.[335] This assessment was then subsequently confirmed by the Court of Justice, which held that the *mere ownership* of intellectual property rights does not grant a dominant position, but that since the undertakings in question held a *de facto* monopoly, the exercise of these rights could have been reviewed in light of EU competition law.[336]

In *Oscar Bronner,* based on a reference for a preliminary ruling, the Court refrained from conducting much of the relevant market and market power analysis and ultimately left those questions for clarification to the referring court.[337] Nonetheless, the Court appears to have suggested that Mediaprint – the allegedly dominant undertaking – could have also been in a position of *de facto* monopoly.[338]

The *IMS* case, another preliminary ruling of the Court, dealt with the question of market power even more briefly, as the case was essentially based on the presumption that IMS had been in a dominant position;[339] it could nonetheless be argued that the Court would have been able to conduct a similar assessment as in *Magill,* because the "brick structure" was largely produced by IMS and also protected by intellectual property rights.[340] The case, taken broadly, nonetheless did contain some form of assessment of market position as the Commission issued an interim measures decision on the basis of a *prima facie* finding of dominance of IMS on the relevant market for "regional sales data services".[341] While the Commission did analyse a sample of actual sales in the relevant market and determined market shares, the information was redacted from the decision.[342]

In *Microsoft*, the market shares have been safely determined with respect to the relevant market for client PC operating systems[343] and in *Commercial Solvents*, the Commission effectively identified a monopoly.[344] The approach in a number of refusal to supply cases nonetheless points to

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[335] Ibid.

[336] Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98*,* paras 46-48.

[337] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569*,* paras 34-35.

[338] On the basis of the order for reference, it appeared that Mediaprint operated the *only* nationwide home-delivery service in Austria. See Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569*,* para 35.

[339] Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257*,* para 22; Opinion of Advocate General in Case C-418/01, *IMS Health* [2003] ECLI:EU:C:2003:537, paras 13-14.

[340] JONES, SUFFRIN, op. cit. 4, p. 520, where they point out that the copyright protection in the case was "weak" and that IMS managed to "hijack" the industry standard.

[341] Commission Decision COMP D3/38.044 — *NDC Health/IMS Health (interim measures)*, paras 56, 62.

[342] Ibid., paras 58-59; it nonetheless appears that the market share held by IMS must have been particularly high, as the Commission held that IMS was in a "quasi-monopoly".

[343] Both in terms of their level and of their stability, see Commission Decision COMP/37.792 – *Microsoft*, paras 431-432. Note, however, that in the *Microsoft* case, refusal to supply was determined with respect to interoperability information relevant to the connection between markets.

[344] Commission Decision IV/26.911 – *ZOJA/CSC – ICI (interim measures)*, section A of the decision (decision not structured into paragraphs, text not available in English).

the fact that the situation in those circumstances was so clear that no further assessment, including the identification of market shares as a first step, needed to be explicitly made.

Furthermore, turning back to the discussion of the concept of refusal to supply in Chapter 3 as the rather controversial exception to the rule that one can chose his or her trading partners (and one that imposes a significant obligation on the dominant undertaking in case a refusal is found to be anticompetitive) it should be noted that the obligation to supply, to provide access to an input, was only imposed once it was certain that the dominant undertaking was effectively in a position of a monopoly or a near-monopoly. Especially with the cases of interoperability information or inputs protected by intellectual property rights, the obligation to provide access was provided in cases where the dominant undertaking or undertakings held these inputs alone and dealing with them was unavoidable. As already suggested, the possibilities of replicating this approach will be discussed further below, with the conclusion that relevant markets *for* big data will only rarely enable such an analysis, especially in cases where the dominant undertaking will not be the only holder of data with such properties.

6.2.3. Determining Market Shares in a Relevant Market for Big Data

As presented above, in cases where market shares can be and subsequently are determined, the competition authority or a court has at its disposal a first, even if preliminary, indication of whether an undertaking holds a dominant position. This indication may be later refuted by other evidence, but it arguably enables to focus the entire market power analysis towards the position of undertakings with the highest market shares, while removing the need to extensively examine the situation of undertakings with the lowest ones.

The key problem with a relevant market *for* big data stems from a problem arguably not limited only to big data but to data in general (therefore, in line with the academic literature discussed below, the problem is presented with respect to data in general with additional discussion of the specific nature of big data dealt with in the next part of this subchapter). Data does not simply fit into either of the two scenarios presented in the subchapters above, where at least a "first step" towards the determination of a relevant market could have taken place. This part of subchapter 6.2. will therefore focus on the issue of market shares with respect to relevant markets for data, while the next part of subchapter 6.2. will analyse the particular features of *availability* of data and its assessment in ascertaining market power. Together, the author argues, these two methods can present a suitable "first indication" test for assessing market power in such a relevant market.

Market shares are generally measured in terms of the volume or value of sales,[345] where the latter is argued to be more reliable in cases where the relevant products vary in price.[346] In contrast, where products or services are provided without charge, the Commission suggests that measuring market shares in volume (of provision of such a product or a service) may be more appropriate as was e.g. the case for measuring the number of *unique users* in the *Microsoft/Skype* decision.[347] While Chapter 5 outlined the cases where data was already sold or provided to third parties, in *potential* upstream markets, also discussed therein, the existing methods of calculating market shares will not work because of the following reasons.

In the absence of provision of data, there is no *conduct* (sale or other provision) with respect to which market shares could be calculated according to the standard methodology presented above.[348] Nonetheless, Graef has suggested a modified approach for determining market shares with the following rationale. If a market for data is defined, but such data is *not* traded or provided to third parties, one can seemingly only measure properties such as the volume, variety of data etc. Hypothetically, these characteristics *could* take the place of the volume or value of sales (or other provision of relevant products) in the "classic" approach for defining market shares. On the other hand, Graef warns that, in practice, every dataset has different "strengths and weaknesses": in particular, it is not certain whether a larger dataset is better than a smaller, but more varied and better organised dataset in any given situation.[349] Therefore, it is complicated to place these properties at the heart of the determination of market shares.

Instead, she proposes using the *value* of data (that may in practice stem from various properties) held by different undertakings. Using such an approach, market shares would be derived from the *"revenue gained by a provider through licensing of data to third parties and/or delivering targeted*

[345] In some cases, however, modifications have been made to account for the specificities of certain relevant markets; e.g. in Commission Decision COMP/39.525 – *Telekomunikacja Polska,* para 668, where the number of connected telecommunication lines for retail customers has been considered; in Commission Decision COMP/38113, *Prokent-Tomra*, where a relevant market for so-called reverse vending machines was defined, Commission took into account the numbers of units of such machines sold and installed. See Commission Decision COMP/38113, *Prokent-Tomra*, paras 1, 59.

[346] EUROPEAN COMMISSION, op. cit. 116, para 54. See also BAILEY, JOHN, op. cit. 119, p. 872-873.

[347] Commission Decision COMP/M.6281 – *Microsoft/ Skype,* paras 78-80.

[348] The Commission itself admits a range of other variables that could be taken into account, such as *"capacity, the number of players in bidding markets, units of fleet as in aerospace, or the reserves held in the case of sectors such as mining."* See EUROPEAN COMMISSION, op. cit. 116, para 54. On the other hand, as explained further in this subchapter and to some extent the next subchapter on availability of data, the characteristics of big data complicate replacing the volume or value of sales by e.g. volume of data.

[349] GRAEF, op. cit. 12, p. 256.

advertising services[.]" [350] This means that instead of selling data, it would be the *monetisation* of data that would be taken into account.[351]

Such an approach is ingenious in that it enables to "circumvent" the question of comparing datasets held by various undertakings at this stage of market power analysis. On the other hand, it carries one significant drawback. The test requires that the data on a potential relevant market *must be monetised*. This means that the test will fall short of being dependable when only one platform on a market for data currently monetises its data; a similar situation might ensue it one platform vastly overperforms its rivals in terms of its ability to monetise data, even though, in terms of their monetising "potential", two or more datasets may be comparable.[352] Furthermore, it is not certain if the test would be usable in a situation where two undertakings collect and store comparable data from their users, but one of them monetises it through targeted advertising while the other only uses it for improved user experience and provides its product or service for a one-time or a subscription fee.[353] Nonetheless, in some cases, this modified method can undoubtedly bring more clarity into the analysis of market power.

In summary, determining market shares standardly requires the sale or other provision of products or services in order to calculate the value or volume of such sale or provision. Since in some cases data may not be provided to third parties at all, such an approach is not feasible; it could nonetheless be possible to modify it and account for the monetisation of data. Even such an approach would, however, not be accurate where data is not even monetised.

6.2.4. Availability of Big Data and Market Power

As outlined above, in some cases, the determination of market shares with respect to data, including big data (to which the discussion in this part of this subchapter applies as well, as was the case above), can be complicated and inaccurate. Therefore, it is proposed below to use the

[350] Ibid., p. 267.

[351] In doing so, the determination of market shares could also become aligned with the valuation of a company, often derived from its ability to monetise data. See SOKOL, Daniel D. and Roisin COMERFORD. Does Antitrust Have a Role to Play in Regulating Big Data? In: BLAIR, Roger D. and Daniel D. SOKOL, eds. *The Cambridge Handbook of Antitrust, Intellectual Property, and High-Tech*. Cambridge, United Kingdom: Cambridge University Press, 2017, p. 303. See also BAGNOLI, op. cit. 282, p. 21-22.

[352] The first example is admitted by Graef, who points to the example of WhatsApp, which did not in the past monetise the data it held on its users, see GRAEF, op. cit. 12, p. 267. The second scenario can be described on the example of social network platforms, which are monetised through advertisements - such a social network may grow simply because it was the first one to arrive at the market and subsequently through direct network effects. However, while it may make the most money from using its data for targeted advertising, it does not mean that any other social networking service cannot provide similar or even better data (most likely not to greater volume of data, but e.g. through larger variety of data collected).

[353] This could arise e.g. with music or podcast streaming and listening applications.

availability of big data discussed in this part of subchapter 6.2. as a complementary criterion when conducting a "first indication" analysis of market power. While even together, these two tests are not devoid of the need for further clarification, such an approach could improve the precision of the modification suggested by Graef; at the same time, the properties of big data that distinguish the concept from "standard" data, can pose a problem to this modification, as also discussed.

It has been also outlined above that for some refusal to supply cases, dominant position was determined through the simple assessment of factual circumstances. Arguably, few cases involving data will be so clear as to enable such an assessment.[354] Nonetheless, the Commission has recently started to conduct a factual assessment of the *availability* of data, in particular of data relevant for advertising purposes. It is argued below that such a factual assessment can be used when the modified market share test outlined by Graef runs into difficulties, e.g. in situations where data is not monetised, to compare the position of an undertaking monetising data and its competitor which does not. Together, these could present the first analytical step needed in order to determine a dominant position in a potential market *for* data, including a market for big data.

In *Facebook/WhatsApp*, the Commission was faced with the proposition that the merger at hand might affect Facebook's position in the online advertising market *due to the increased amount of data* under its "control". The Commission thus examined the availability of user data valuable for online advertising purposes and held that *"there are currently a significant number of market participants that collect user data alongside Facebook."*[355] One of these was Google, which "controlled" about a third of such data, overperforming any other competitor.[356] Eventually, the Commission decided that "*there will continue to be a large amount of Internet user data that are valuable for advertising purposes and that are not within Facebook's exclusive control."*[357]

In other words, factually, enough relevant data was available for others to collect and use. Although this decision did not find problems with the access to relevant data, it is nonetheless of vital importance because of the two decisions following it. In a rather short succession, similar questions were raised in *Microsoft/LinkedIn* and *Verizon/Yahoo*, where the Commission not only

[354] In particular, the most likely "candidates" would be the markets for data subsequently used in data analytics services. In fact, a similar situation (albeit one where data was already provided) occurred in the U.S. in the *PeopleBrowsr v Twitter* case. See PeopleBrowsr, Inc. v. Twitter, Inc.No. C-12-6120 EMC (N.D. Cal. Mar. 6, 2013) and JEFFRIES, Adrianne. After suing Twitter, PeopleBrowsr wins data access back in settlement. *The Verge* [online]. Vox Media, 2013 [cit. 2019-06-21]. Available at: https://www.theverge.com/2013/4/25/4266692/after-suing-twitter-peoplebrowsr-wins-data-access-back-in-settlement.

[355] Commission Decision COMP/M.7217 – *Facebook/WhatsApp,* paras 188-189 and in particular the figure in para 188.

[356] Ibid.

[357] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 184-189; this decision is only one in a line of cases using the same rationale, see BKA/ADC, op. cit. 13, p. 42-44.

explicitly considered a hypothetical market for advertising data, but also confirmed that in such situations, it will conduct an analysis of the *availability* of data.[358]

On its own, the assessment of availability of data would not present a sufficiently clear method to provide the first indication of market power that is usually the result of the determination of market shares. This is due to the two reasons explained below.

Firstly, if "control" (as the *Facebook/WhatsApp* decision put it) of data were to be the decisive factor in a "first indication" test of market power, one would first have to define what does "control" mean with respect to data. As a consequence, it would be necessary to firstly divide the relevant data into a number of categories, to properly reflect the possibilities of their legal protection, e.g. into *personal data* as defined by the General Data Protection Regulation ("GDPR")[359] and non-personal data.[360] With respect to big data, such a categorisation should in principle be also feasible, albeit more demanding (e.g. it would be most likely necessary to base the "categorisation" of data on the sources of data or ways it is obtained, instead of going through the actual data). As a next step, each category would require a separate assessment and a determination of what degree of "control" would be sufficient for the purposes of the test; for illustration, when it comes to personal data, an undertaking can be either a data processor or a data controller under GDPR and even beyond these two categories, it can have various levels of permission to use such data.[361] Such an exercise might turn out to be unnecessarily complicated for the purpose of providing a first indication of market power.

Secondly and similarly to the modification of market shares suggested in the previous part of subchapter 6.2., the availability of data will also be influenced by the various properties of big data. Even if the *substitutability* of data is properly ascertained when defining relevant markets[362] and the relevant characteristics of data are known,[363] analysing the availability of data would still require comparing *various datasets to each other* and run into the same problems as the determination of

[358] Nonetheless, the Commission did not find an issue with the availability of data in any of these cases. See Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, para 180 and Commission Decision COMP/M.8180, *Verizon/Yahoo*, paras 80-83.

[359] Art. 4 (1) of GDPR.

[360] See Art. 1 of EUROPEAN COMMISSION. *Proposal for a Regulation of the European Parliament and of the Council on a framework for the free flow of non-personal data in the European Union*. Brussels, 13.9.2017, COM/2017/0495 final - 2017/0228 (COD).

[361] See Art. 4 (2) and (7) of GDPR. Furthermore, "control" over personal data (in terms of the *Facebook/WhatsApp* decision) can be expressed through legal terms; this is not, however, guaranteed for every category or type of data "control" over which might need to be assessed.

[362] See Chapter 5 in this respect.

[363] E.g. while the *Facebook/WhatsApp* decision left the definition of data relevant for advertising purposes largely open, it also gave a few indications on what sort of concrete data may fall within such a category by noting that *"WhatsApp does not currently collect data about its users concerning age, verified name, gender, social group, activities, consuming habits or other characteristics that are valuable for advertising purposes"* See Commission Decision COMP/M.7217 – *Facebook/WhatsApp,* para 71.

market shares presented above. Furthermore, if the relevant market would be defined broadly and the analysis of substitutability would not reveal sufficiently precisely the key attributes of data in a given situation, looking only at availability could actually distort the assessment of market power, e.g. by unduly focusing on one aspect of big data such as its volume.[364]

Instead of using availability of data in *absolute terms,* it may be more appropriate to use the *availability* of data as a *relative* test in cases where the market shares determined by the analysis of monetisation of data do not precisely describe the market power in relation to data.

In practice, the market shares of undertakings on a relevant market would be ascertained at first; subsequently, the availability of data (specified according to circumstances; if "standard" data was in question, it could be described in concrete terms, while with the case of big data, a description would also be possible, but in more general terms) would be analysed to examine whether there are undertakings which, on one hand, do "control" the same volume, variety etc. of data as the undertaking with e.g. the highest market share, but on the other, do not monetise such data. Both the type and degree of "control" and the pertinent data characteristics would be derived from the position of the undertaking with the highest market share, not determined in absolute terms. Finally, the undertakings in similar position in terms of availability of data would be viewed *as if* they held similar market shares.

With respect to big data, the above presented approach, as well as the modification proposed therein, runs into one potential obstacle. As already mentioned, if big data is defined by the properties of volume, variety, velocity etc. that go beyond the characteristics of "standard" data, it may turn difficult to determine, to measure, these properties in a way that would benefit the test. The modified approach towards market shares presented here relies on the feasibility of comparing the properties of big data (i.e. in a scenario where multiple undertakings control big data, distinguishing them from controllers of "standard" data, big data still could be compared in terms of their properties). The author would argue that even though big data (as suggested in Chapter 2) can bring the ability to provide qualitatively different results when analysed, its properties could still be assessed quantitatively (e.g. the variety or volume of big data could still be compared, albeit only with the volume or variety of big data held by a different actor). Therefore, if it still could be possible to compare big data controlled by different actors (albeit with less clarity than if such a case concerned "standard" data), the added assessment of availability of data would complement the

[364] A test of market power aimed mainly at the volume of data might actually distort the perceived availability of data in favour of the undertakings "controlling" the largest volumes. This issue can be illustrated on the study that was used in the *Facebook/WhatsApp* decision in order to make a conclusion on the availability of data relevant for advertising purposes. The study (and the graph reproduced in the decision) showed that Facebook "controlled" only a single-digit percentage of data available for advertising purposes, while the majority of such data was actually out of the hands of the largest platforms. See Commission Decision COMP/M.7217 – *Facebook/WhatsApp,* para 188.

market share method proposed by Graef and lead to results that would better reflect the situation on a relevant market for big data.[365]

Even with the test outlined, however, it would be necessary to keep in mind that market shares, even if complemented by the analysis of availability, still only provide a first indication as to the market position of undertakings. As will be presented in the subsequent subchapter, the level of barriers to entry or expansion can have a significant impact on the eventual finding of a dominant position on a market for big data.

6.3. Barriers to Expansion and Entry

The previous subchapter has dealt with the analysis of the *market position* of an undertaking on a relevant market, one of the three key factors examined by the Commission when assessing market power. In contrast to market position, which covers *existing* competitive constraints posed by *actual* competitors, the second factor and the subject-matter of this subchapter, i.e. barriers to expansion and entry, focuses on the *potential* developments with respect to the relevant market.

These events can take the form of expansion on part of the actual competitors as well as possible entry by undertakings which are potential competitors to the allegedly dominant entity.[366] If the findings concerning market position, especially through the use of market shares, provide a "useful first indication" of market power, then the analysis of barriers to entry and expansion can confirm, clarify or even correct such an indication.

In contrast to the determination of market position, which is focused on market shares, barriers to entry and expansion can take a much larger number of forms. These can range from legal barriers, such as the ownership of intellectual property rights,[367] or technological advantages[368] to obstacles to entry and expansion of economic nature.[369] These barriers need not to be absolute, but in order to be relevant for the determination of a dominant position, they should either impede an actual competitor in competing with the market leader or deter a potential competitor from entering the market.[370] As the Commission put it, a sufficiently relevant entry *"cannot be simply [a] small-scale entry, for example into some market niche, but must be of such a magnitude as to be able to*

[365] At the same time, the author acknowledges that the combination of these two tests would not be without problems; the issue of "control" would still need to be clarified and the choice of "metrics" could be questioned, but the *relative* assessment of availability would present less serious issues than if the analysis were to be conducted in absolute terms.

[366] WHISH, BAILEY, op. cit. 29, p. 188.

[367] See the discussion of the *Magill* case in the previous chapters; see also BAILEY, JOHN, op. cit. 119, p. 880-882.

[368] See e.g. Case 85/76, *Hoffmann-La Roche* [1979] ECLI:EU:C:1979:36, para 48.

[369] EUROPEAN COMMISSION, op. cit. 116, para 17. See also in general WHISH, BAILEY, op. cit. 29, p. 188, BAILEY, JOHN, op. cit. 119, p. 879.

[370] BAILEY, JOHN, op. cit. 119, p. 879.

deter any attempt to increase prices by the putatively dominant undertaking in the relevant market."[371] Furthermore, such an action must be sufficiently *swift* to prevent the exercise of the dominant undertaking's market power.[372]

In terms of a relevant market *for* big data, the key question with respect to barriers to entry and expansion will be the difficulty in obtaining data that would enable an undertaking to exert sufficient competitive pressure on the supposed dominant undertaking. The inquiry into these barriers will be heavily influenced by the definition of the relevant market and, once again, by the substitutability of big data on the upstream relevant market. Nonetheless, in terms of a relevant market for big data, it is likely that two questions will arise and are thus subject to further discussion in the subsequent parts of this subchapter: the costs of obtaining big data (6.3.1.) and the relevance of network effects in the collection of big data (6.3.2.).

6.3.1. Costs of Obtaining Data

This part of subchapter 6.3. argues that barriers to entry and expansion *may* be created by the costs of obtaining big data and such a factor will most likely have to be ascertained in practice if access to big data is sought with reference to EU competition law. This part of subchapter 6.3. (in contrast to the next part) focuses on obstacles that apply to data in general but may also influence obtaining big data.

Data, in general, is not a scarce resource. To the contrary, it is nearly universally accepted that data *can* be easy to acquire, because it is non-rivalrous: the fact that one undertaking holds and uses a certain dataset does not preclude another undertaking from doing the same if both can (e.g. without legal obstacles) access the data.[373] The German and French competition authorities pointed out that this statement, between the collection of data offline and online, may apply even more strongly to the latter as data may be generally easier to collect on digital markets.[374]

Over the last couple of years, a significant amount of literature has been devoted to the relevance of data for the assessment of market power; its conclusions, however, vary significantly, as the authors take positions across the whole possible spectrum of opinions on the significance of

[371] EUROPEAN COMMISSION, op. cit. 116, para 16.
[372] Ibid.
[373] See DAVILLA, Marixenia. Is Big Data a Different Kind of Animal? The Treatment of Big Data Under the EU Competition Rules. *Journal of European Competition Law & Practice*. 2017, **8**(6), p. 371. See also NUCCIO, GUERZONI, op. cit. 44, p. 6; SOKOL, COMERFORD, op. cit. 351, p. 299; STUCKE, GRUNES, op. cit. 8, p. 44-45.
[374] BKA/ADC, op. cit. 13, p. 46.

data.[375] In particular, those commentators who support the connection between holding large amounts of data and market power base their arguments on the scale and scope of data held by an undertaking they argue has significant market power.[376] The opponents of such arguments point to a number of other characteristics of big data, including the loss of value over time and diminishing returns on scale after reaching a certain critical volume.[377] Most of all, the authors sceptical of the connection between big data and market power ague that data is generally easy to obtain, as it is ubiquitous, inexpensive and easy to collect; the marginal cost of collecting additional data is claimed to be "nearly zero".[378]

On the other hand, it is not a given that all data collected online is easy and cheap to acquire. In particular, while the marginal costs for obtaining additional data may be very low for undertakings that have already set up their operations, the collection of data may be subject to high initial investments or even expensive in itself, depending on the characteristics of data.[379]

For illustration, in *TomTom/TeleAtlas*, the Commission ascertained that creating so-called digital navigable map databases was a very expensive and time-consuming process.[380] Although some difficulties in creating this sort of data can be alleviated in the online environment (e.g. by using online upload or entry of data instead of manual entry), some claim that mapping information or mapping data is different from other kinds of data collected online and is by no means less demanding to produce than outside of the online environment.[381] For instance, the need to regularly update mapping data (relevant for *any* mapping service) might present significant costs that other undertakings will not be able to cover and thus collect comparable data by themselves.[382] Further support for such a claim can be found in two major acquisitions of mapping services in the last couple of years.[383] This would suggest that in some cases, difficulties and costs associated with

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[375] Compare STUCKE, GRUNES, op. cit. 8, p. 42-47 and SIVINSKI, OKULIAR, KJOLBYE, op. cit. 270, p. 209, 213-215.

[376] NEWMAN, Nathan. Search, Antitrust, and the Economics of the Control of User Data. *Yale Journal on Regulation*. 2014, **31**(2), p. 414, 423. See also STUCKE, GRUNES, op. cit. 8, p. 42-43; BKA/ADC, op. cit. 13, p. 49-52.

[377] TUCKER, Darren S. and Hill WELLFORD. *Big Mistakes Regarding Big Data* [online]. Antitrust Source, American Bar Association, December 2014, 2015 [cit. 2019-06-22], p. 6-9 Available at SSRN: https://ssrn.com/abstract=2549044. LAMBRECHT, Anja, and Catherine E. TUCKER. *Can Big Data protect a firm from competition?* [online]. CPI Antitrust Chronicle, January 2017, 2017 [cit. 2019-06-22], p. 1-4. Available at: https://www.competitionpolicyinternational.com/wp-content/uploads/2017/01/CPI-Lambrecht-Tucker.pdf. See also for an overview of the existing literature SOKOL, COMERFORD, op. cit. 351, p. 294-295.

[378] SOKOL, COMERFORD, op. cit. 351, p. 288-299.

[379] For instance, the German and French Competition authorities submit that fixed costs may have to be invested in order to collect and exploit sufficient amounts of data and might prevent new entrants making use of the same volume or variety of data as large incumbents. See BKA/ADC, op. cit. 13, p. 38.

[380] Commission Decision COMP/M.4854 – *TomTom/Tele Atlas,* para 132.

[381] STUCKE, GRUNES, op. cit. 8, p. 170-173.

[382] Ibid.

[383] These are the attempted acquisition of Nokia's mapping service mentioned in STUCKE, GRUNES, op. cit. 8, p. 42-43, (although the service was eventually acquired by a consortium of German car-makers rather than Uber) and the

collecting data may persist in spite of the service's online element. On the other hand, even these economic obstacles did not prevent Google from creating its own maps service and quickly rising in importance.[384]

Consequently, in a potential refusal to supply case, it will be necessary to take precise account of the costs of obtaining data instead of relying on the general claims about its collection presented above. Such costs will most likely have to be assessed on a case-by-case basis as one of the possible types of barriers to entry or expansion dependent on the nature of data. Beyond economic limits and as is the case with barriers to entry and expansion in general, the collection of data may be hindered by other types of obstacles, e.g. those presented by contract, intellectual property or trade secret law[385] or by obstacles of technical nature.[386] As is the case with the costs of obtaining data, these factors will most likely have to be assessed on a case-by-case basis as well.

6.3.2. Network Effects as Barriers to Entry or Expansion

When assessing barriers to entry or expansion, it is vital to look at the importance of network effects. As suggested in Chapter 2, network effects are associated with the ability to quickly develop the position of a product or service provider that takes advantage of these effects, as well as with the possibility to "tip" a certain relevant market towards one undertaking. In this context, network effects have to be viewed as the tools that enable undertakings to collect large amounts of data and thus strengthen their position on a market *for* big data. This part of subchapter 6.3. thus discusses their importance and influence.

As is the case with the availability of data in light of the costs of obtaining it, the role of network effects is subject to discussion as well. Some authors claim that network effects, or rather their successful use, enables a new undertaking to enter, to contest a relevant market and quickly rise in importance;[387] other point out that network effects present an advantage to the incumbent undertakings and that unless an undertaking achieves a critical size, it will be hard for it to remain or even advance on the market.[388]

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acquisition of the Waze community mapping service by Google; see in this respect the reflection on Google's acquisition of Waze in STUCKE, GRUNES, op. cit. 8, p. 93-99, and CLEMENS, Georg. and Mutlu ÖZCAN. *The relevance of supply-side substitutability for "Big data"*. [online]. 2018-10-16 [cit. 2019-06-22], p. 7-8. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3254088.

[384] CLEMENS, ÖZCAN, op. cit. 383, p. 6-7.

[385] GRAEF, op. cit. 12, p. 267-268; RUBINFELD, GAL, op. cit. 38, p. 359.

[386] RUBINFELD, GAL, op. cit. 38, p. 350-352.

[387] NUCCIO, GUERZONI, op. cit. 44, p. 7-8; SIVINSKI, OKULIAR, KJOLBYE, op. cit. 270, p. 217.

[388] See BKA/ADC, op. cit. 13, p. 27-28; KRÄMER, WOLFARTH, op. cit. 155, p. 165-166, SOLANO DIAZ, op. cit. 215, p. 401-402.

The actual relevance of network effects may be influenced already at the stage of defining relevant markets, especially when because of the analysis of substitutability, some special properties (e.g. variety, velocity etc.) turn out to be "defining" for big data in a given situation. Furthermore, even if such characteristics are not explicitly identified when determining relevant markets, they might turn out to be vital in order to make a sufficiently swift and successful entry or expansion into the relevant market, as is required by the Commission's view on these barriers.[389]

In practice, two situations can occur: firstly, an undertaking may try to develop network effects from zero; secondly, an undertaking which already takes advantage of network effects on one relevant market can attempt to leverage these effects and expand its activities into another relevant market.[390] The likelihood of their success will have to be analysed on a case-by-case basis as different relevant markets vary in their "capacity" to absorb new product or service providers that could subsequently take advantage of network effects. Some factors, such as the innovative nature of a product or service provided by a potential entrant[391] or the willingness of users to multi-home in various relevant markets can play a role in such an assessment.[392]

For instance, WhatsApp, prior to its acquisition, actually managed to surpass Facebook in terms of market share in the consumer communications sector; at that time, WhatsApp did not serve advertisements to its users, which became an important aspect of its wide adoption.[393] On the contrary, Google was not able to use its position in other relevant markets to successfully develop its Google+ social networking service.[394] It thus appears that in practice, *each* relevant market will have to be analysed in terms of the impact innovative products can make on competition on the market or the factors driving multi-homing of users.

It was suggested by the Commission that in the market for consumer communications, multi-homing is wide-spread and that consumers pay attention to the functionalities of various services.[395] On the other hand, in terms of so-called professional social networking services, incentives to multi-home are apparently much lower because of the significant time-investments on part of users with

[389] EUROPEAN COMMISSION, op. cit. 116, para 16.

[390] Interestingly, prior to its acquisition by Facebook, WhatsApp found itself in the first situation at the start of its operation. However, as some authors have argued, WhatsApp was potentially in the second type of situation outlined above and it could have been feasible for it to "venture" into the social networking services market. See CLEMENS, ÖZCAN, op. cit. 383, p. 1.

[391] Although, as will be argued in the next chapter, if it is possible to successfully enter into a relevant market with an innovative product, access to data will be less likely to be indispensable for competing in such a setting.

[392] SOLANO DIAZ, op. cit. 215, p. 401-402.

[393] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 41,87, 96.

[394] WELCH, Chris. Google begins shutting down its failed Google+ social network. *The Verge* [online]. Vox Media, 2019 [cit. 2019-06-23]. Available at: https://www.theverge.com/2019/4/2/18290637/google-plus-shutdown-consumer-personal-account-delete.

[395] Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, para 87.

respect to the curating of their professional profiles.[396] As a consequence, the Commission suggested in *Microsoft/LinkedIn* that the network effects in such a market are not easily mitigated and much less so possible to replicate.[397]

With respect to search services, the *Google Shopping* decision suggested that multi-homing (on part of users with Google as their preferred search service) was infrequent; obtaining search data on a competitive scale thus appears highly difficult.[398] With respect to social networking services, academic writing suggests that in the absence of innovative features or superior content (which, as outlined in Chapter 2, is nonetheless provided by users), consumers will tend to move to the services with the largest user bases and, accordingly, strongest network effects.[399]

In conclusion, network effects can play a significant role in terms of determining barriers to entry. However, as is the case with all barriers to entry and expansion, they need to be assessed on a case-by-case basis. In particular, the impact of innovative features or the general likelihood of consumers multi-homing will need to be examined. For this reason, the successful modification of the market share determination method appears all the more important, as it may focus the analysis of market power in the right direction and make the determination of barriers to entry and expansion more effective.

6.4. The Feasibility of Determining Dominant Position on a Market for Big Data

As most of this chapter dealt with the methodology of determining a dominant position on a relevant market for data, it is necessary to outline (even though the actual determination of dominant position will be case-specific) the possibility of such a finding.

The author argues that although there are significant obstacles in determining dominant position on a relevant market for big data, such a conclusion should be feasible. This is based mainly on the findings of Chapter 5, where it was shown that defining a (even potential) relevant market for big data as an input ought to be possible (but once again, with difficulties in the process). As suggested on the example of the *Microsoft/LinkedIn* decision with respect to the CRM software and data needed for its machine learning functionality, a possible delineation of a relevant market could entail partial description of the category of data in question (i.e. customer data involving data on user activity, e-mails etc.) while also making it possible for such data to reach the volume, variety

[396] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 344-345.
[397] Ibid.
[398] Commission Decision COMP/AT.39740 – *Google Search (Shopping)*, paras 306-309.
[399] MITAL, Monika and Sumit SARKAR. Multihoming behavior of users in social networking web sites: a theoretical model. *Information Technology & People*. 2011, **24**(4), p. 389-390.

etc. to fall within the definition of big data (and subsequently be only usable with advanced analytical methods on downstream level).

In such a scenario, only one undertaking could control data fitting this description and at the same time fulfilling the properties necessary to view it as big data, but (provided that big data of multiple actors would be substitutable) multiple undertakings could be in principle able to provide such data at the same time. For a finding of dominance, in light of the discussion of barriers to entry, however (especially with the imposition of the obligation to provide access to big data in mind), an undertaking should ideally be in a position of near-monopoly; as was the case with dynamically evolving markets, only the highest market shares (if possible to calculate) should be taken as a suggestion of dominance.

7. Application of the Refusal to Supply Test

After the definition of relevant markets and the finding of a dominant position of an undertaking on the upstream market, the next step in the analysis of a potentially anticompetitive refusal to supply, to provide access to big data, is the application of the test outlined in Chapter 3. Therefore, in turn, the relevant conditions that must be fulfilled in order to determine a refusal of supply in violation of Art. 102 TFEU, are discussed in the four chapters below in the order starting with indispensability (subchapter 7.1.) and continuing with the exclusion of effective competition on the downstream market (subchapter 7.2.), the "new" product criterion (subchapter 7.3.) and ending with the discussion of objective justifications for refusals to supply (subchapter 7.4.).

7.1. Indispensability

This subchapter discusses the criterion of indispensability of an input for the competition on the downstream relevant market; firstly, it briefly outlines the general understanding of the condition in light of the Court's case-law and secondly, it deals with its use in cases concerning data.

The first criterion needed to be fulfilled in order to find abusive conduct in a refusal to supply under Art. 102 TFEU is based on the premise that the position of dominance is in itself not enough to require an undertaking to deal with customers on the downstream relevant market. Thus, the product or service an undertaking seeks access to must be *indispensable* for such a competitor to carry on with its business, or, in other words, indispensable in order to compete.[400] It has been proposed that the criterion of indispensability has two dimensions:[401] the input sought must be *objectively necessary* for competing on the downstream relevant market[402] and there must be *no actual or potential* (but economically viable) *substitutes* for it.[403]

The access to the input sought must go beyond simply being commercially useful or convenient; if the Court's interpretation of law was to the contrary, undertakings would face an immensely broad duty to deal.[404] Therefore, the refusal to supply test contains a rather strict condition of indispensability. In a recent judgment in *Slovak Telekom*, the Court also held that while

[400] WHISH, BAILEY, op. cit. 29, p. 742; EUROPEAN COMMISSION, op. cit. 13, p. 98-99.

[401] Some authors apparently do not take this view, at least with respect to the *Oscar Bronner* case, and point to these dimensions separately: JONES, SUFFRIN, op. cit. 4, p. 506.

[402] Also mentioned as a factor in EUROPEAN COMMISSION, op. cit. 116, para 81.

[403] GRAEF, op. cit. 12, p. 216.

[404] JONES, SUFFRIN, op. cit. 4, p. 507; the rule that indispensability goes beyond mere commercial usefulness was also confirmed in the *Tiercé Ladbroke* and *European Night Services* judgments. See Case T-504/93, *Tiercé Ladbroke* [1997] ECLI:EU:T:1997:84, para 10, and Joined cases T-374/94, T-375/94, T-384/94 and T-388/94, *European Night Services Ltd* [1998] ECLI:EU:T:1998:198, paras 205-221.

demonstrating indispensability (by the Commission) is not necessary in all refusal to supply cases, it cannot be disposed of where no regulatory framework for the provision of access exists.[405]

A number of findings from the case-law of the Court as well as Commission's practice is relevant for clarification of the criterion. In order to qualify as objectively necessary, an input has to offer the *possibility* of competing effectively with the incumbent dominant undertaking, i.e. exerting a competitive constraint on such an undertaking in the downstream market.[406] On the other hand, a product or service might still be held indispensable in spite of the existence of some (albeit small, fringe) competitors in a given market.[407] It is also not necessary for the lack of access to the indispensable input to cause other competitors to leave the relevant market altogether, it merely suffices if such competitors cannot reach a *critical competitive position*.[408]

The absence of actual or potential substitutes must be assessed in light of any obstacles of technical, legal or economic nature[409] that would make it at least unreasonably difficult, if not impossible, to produce a substitute, an alternative solution, to the required "facility" in foreseeable future.[410] The alternatives must not necessarily be equally advantageous to the access-seeking undertaking,[411] but it may be taken into account that it is not economically viable to replicate the input *on a scale comparable* to that of the undertaking controlling it.[412] Furthermore, these alternatives need not to be developed solely by the undertaking seeking access, but in principle can be created together with other competitors.[413]According to the Commission, *"an input is likely to be*

[405] Case T-851/14, *Slovak Telekom* [2018] ECLI:EU:T:2018:929; while the Court did not state this in such unequivocal terms, the author argues that this conclusion should follow from the consideration of paras 118, 120-121 and 128 read together.

[406] EUROPEAN COMMISSION, op. cit. 116, para 83. See also Opinion of Advocate General in Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:264, para 51 and in particular para 66, where AG Jacobs explains: *"the test in my view must be an objective one: in other words, in order for refusal of access to amount to an abuse, it must be extremely difficult not merely for the undertaking demanding access but for any other undertaking to compete. Thus, if the cost of duplicating the facility alone is the barrier to entry, it must be such as to deter any prudent undertaking from entering the market [and] it will be necessary to consider all the circumstances, including the extent to which the dominant undertaking [...] must pass on investment or maintenance costs in the prices charged on the related market."*

[407] JONES, SUFFRIN, op. cit. 4, p. 530 with respect to the *Microsoft* case.

[408] Commission Decision COMP/39.525 – *Telekomunikacja Polska*, paras 815-818.

[409] See WHISH, BAILEY, op. cit. 29, p.743-747 for an account of the cases where an input was considered to be indispensable or at least it could be argued that such an input was indispensable based on those three types of barriers.

[410] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, paras 45-46; EUROPEAN COMMISSION, op. cit. 116, para 83.

[411] See e.g. the account of refusal to supply case-law in Case T-851/14, *Slovak Telekom* [2018] ECLI:EU:T:2018:929, para 116.

[412] See Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, para 28, which confirmed this reading of the *Oscar Bronner* case.

[413] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, para 44.

impossible to replicate when it involves a natural monopoly due to scale or scope economies, where there are strong network effects or when it concerns so-called 'single source' information."[414]

In practice, the assessment of this criterion will show whether and if so, to what extent, is the reliance of data a significant aspect of competition on the downstream market. Two closely related issues will have to be examined: firstly, whether is it possible to successfully compete on the downstream market without relying on data at all, especially through the introduction of innovative products and services, and secondly, in cases where data is required for competing on the downstream market, what scope and scale of data is objectively necessary to effectively exert competitive pressure on the incumbent undertaking or undertakings.

Although the fulfilment of the criterion of indispensability will have to be analysed on a case-by-case basis, some past decisions of the Commission already shed light on the indispensability of data (or more precisely, the data of a certain undertaking) in certain situations. For instance, in line with the discussion on the issue of *availability* of data in Chapter 5, data relevant for online advertising is unlikely to be held indispensable, because it is possible to access this type of data from other sources.[415]

In *Microsoft/LinkedIn*, the indispensability of data for so-called customer relationship management ("CRM") software was also effectively discussed (as already suggested in previous chapters, this type of data could fulfil the definition of big data). One of the competitors in the CRM services sector argued that access to LinkedIn's data would enable Microsoft to develop, as the only undertaking able to do so, a CRM service with a "machine-learning" functionality.[416] On the contrary, the Commission found that this conclusion was unlikely to materialise in the future, not only because there were legal barriers to Microsoft's access to the full extent of LinkedIn's data,[417] but mostly because of the two following reasons. Firstly, Microsoft's competitors have already started to develop their own machine learning functionalities and none of them required LinkedIn's data for such action and, secondly, once again, other data that could enable the development of such a functionality, namely so-called "in-house" data,[418] was available to them.[419] Nonetheless, it

[414] EUROPEAN COMMISSION, op. cit. 116, para 83 (footnote 58); furthermore, the Commission adds therein that *"in all cases account should be taken of the dynamic nature of the industry and, in particular whether or not market power can rapidly dissipate."*

[415] See e.g. Commission Decision COMP/M.7217 – *Facebook/WhatsApp*, paras 188-189 or similarly with regard to advertising data, Commission Decision COMP/M.6314 – *Telefónica UK / Vodafone UK / Everything Everywhere / JV,* para 558. Furthermore, as the Commission explains, goals for which data is sought (unlike e.g. physical infrastructure) may vary greatly in practice and may be complex. See EUROPEAN COMMISSION, op. cit. 13, p. 100.

[416] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, para 246.

[417] Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 254-255.

[418] In contrast to data obtained from a third party such as LinkedIn. See Commission Decision COMP/M.8124 – *Microsoft/LinkedIn*, paras 259-261.

[419] Ibid.

appears that in cases where the competition on the downstream level is connected to the use of (big) data analysis (e.g. in the form of machine-learning), the indispensability of data will have to be examined more closely and, in particular, with an understanding of the use of such data in any concrete process.[420]

Furthermore, there has been an intensive debate on the position of Google, both in terms of its search engine (and as a consequence, access to search data), but also of its overall platform that enables the combination of data from different parts of its online environment, that can illustrate the complexities associated with analysing whether data is indispensable *due to its properties*. It has been argued that the market for general search services is very likely to "tip" towards a single provider because of the amount of data Google has at its disposal and can use to improve its search engine.[421] If that were to be proved in practice,[422] two situations, both of which would be relevant to the question of indispensability, could ensue.

Firstly, other search engine providers could request Google's search data (also potentially fulfilling the definition of big data), as it would be only possible to compete in the general search services market with access to this data.[423] In that case, it would have to be ascertained whether "effective competition" could be possible on part of undertakings that do not rely on Google's data, but build their own engines and work with a limited amount of data; for instance, the position of engines such as DuckDuckGo or Qwant, both promoting the privacy of their customers as an advantage of their product.[424] Secondly, the relevance of the scope and scale of Google's data could be ascertained for differentiated, "value-added" services: from specialised search engines (e.g. focused on travel information) to completely separate products that could even require access to the data collected across services.[425]

In conclusion, the practical assessment of the criterion of indispensability is going to shed light on the importance of big data for competition on a given market. What competition authorities will have to examine closely is the nature of services provided on the downstream level, in particular when consisting of data analytics, and the possible reliance of data of certain scope, scale or other

[420] SIVINSKI, OKULIAR, KJOLBYE, op. cit. 270, p. 222. An interesting conclusion was recently also reached by the Commission (or in a material sanctioned by the Commission): the Commission recommends to distinguish between situations where access is sought for analytics purposes related and unrelated to the market in which a data holder is active, see EUROPEAN COMMISSION, op. cit. 13, p. 75-76 and 100.

[421] ARGENTON, PRÜFER, op. cit. 40, p. 90.

[422] See also the discussion on multi-homing with respect to Google in Chapter 6.

[423] ARGENTON, PRÜFER, op. cit. 40, p. 79, 100.

[424] Available at: https://duckduckgo.com/?t=hp [accessed 2019-06-27] and https://www.qwant.com/ [accessed 2019-06-27].

[425] See e.g. ABRAHAMSON, op. cit. 103, p. 880, who mentioned a spell-checking feature developed on the basis of search results. See also ARGENTON, PRÜFER, op. cit. 40, p. 96.

characteristics that could be only produced by the dominant undertaking and with respect to big data.

7.2. Elimination of Effective Competition in the Downstream Market

This subchapter focuses on the second criterion that must be fulfilled in order to find a refusal to supply contrary to Art. 102 TFEU. In practice, its analysis is close to the assessment of the previous criterion; on the other hand, it differs in one significant aspect and the main part of the discussion below is accordingly focused on the *interpretation* of this condition, which could potentially have significant impact on the feasibility of demanding access to big data in certain situations.

The formulation of the second condition in the test for refusal to supply is essentially a compromise between two other thresholds for the elimination of competition on the downstream market. On one hand, parts of the *Commercial Solvents* case suggested that *all* competition on the downstream market needs to be eliminated in order to find an abuse of dominant position;[426] on the other, in *Oscar Bronner*, this criterion was only applicable to the competition *on part of the undertaking seeking access* to a certain product or service.[427] Eventually, the threshold of the elimination of all *effective* competition was settled on.[428] In this respect, the criterion of indispensability is closely related to this requirement, as the level of competition is taken into account in both and the assessment of which is often made generally together.[429]

A key issue with this criterion is that it is interpreted as meaning that the dominant undertaking *must be already present* on the downstream market; in refusing to supply its competitors on downstream market, it leverages its dominant position and effectively reserves such a market for itself.[430] In this respect, the criterion provides a dividing line between the narrower view on refusals to supply in EU law and the broader approach towards the properly defined U.S. essential facilities doctrine.[431] This would pose significant, if not insurmountable, obstacles to using the refusal to

[426] Joined cases 6 and 7/73, *Commercial Solvents* [1974] ECLI:EU:C:1974:18, para 25; see also the formulation in Case C-418/01, *IMS Health* [2004] ECLI:EU:C:2004:257, paras 38 and 52.

[427] Case C-7/97, *Oscar Bronner* [1998] ECLI:EU:C:1998:569, paras 25, 38.

[428] EUROPEAN COMMISSION, op. cit. 116, para 85; WHISH, BAILEY, op. cit. 29, p. 748, GRAEF, op. cit. 12, p. 220-221.

[429] Furthermore, as Graef points out, in practice these two factors may be assessed together. See GRAEF, op. cit. 12, p. 274.

[430] BAILEY, JOHN, op. cit. 119, p. 959-960, GRAEF, op. cit. 12, p. 220; compare with EUROPEAN COMMISSION, op. cit. 116, para 76, where Commission states that *typically* competition problems arise *"where the competitors that the dominant undertaking forecloses are, as a result of the refusal, prevented from bringing innovative goods or services to market and/or where follow-on innovation is likely to be stifled."*

[431] BAILEY, JOHN, op. cit. 119, p. 960; There is only limited evidence of decisions taken according to the broader approach. In fact, even Commission's decisions that actually use the formulation "essential facility" mostly dealt with

supply framework in order to access big data by undertakings competing on a market where the dominant undertaking is not yet present or even on an altogether new market, which the undertaking seeking access is planning to enter.

On the other hand, there is support for broadening the application of refusal to supply beyond its current limits; at the very least, it is difficult to exclude completely the possibility of applying this criterion on markets without the dominant undertaking's presence or on new, emerging markets.[432]

Graef suggests that the act of reserving of a market to the dominant undertaking under the current understanding of the criterion discussed in this subchapter is not so different from an undertaking effectively preventing others from accessing a market such undertaking itself intends to enter in foreseeable future.[433] To some extent, this opinion finds support in the *Aéroports de Paris* judgment, where the General Court held that *"the concept of abuse is an objective concept and implies no intention to cause harm. [Furthermore,] the fact that [the dominant undertaking] has no interest in distorting competition on a market on which it is not present [...] is in any event irrelevant."*[434] This judgment was also taken as an inspiration by the English High Court when deciding a case where the Luton airport did not compete on the market for coach services, but benefitted commercially from terms of a contract given to the exclusive operator of coach transport to the airport. Justice Rose wrote: *"I reject the contention that the economic or commercial interest on the part of the dominant undertaking must derive from it being active itself on the downstream market. I can see no legal or economic justification for such a requirement. Indeed, this case shows how arbitrary such a requirement would be."*[435]

Furthermore, the Commission itself points out that consumer harm might arise due to refusals which prevent innovative goods and services from being brought to the market.[436] and abusive behaviour can also be found in cases of licensing intellectual property rights, where the refusal to supply prevents the emergence of a *new product* (discussed further below). There is, therefore, sufficient reasoning for broadening the current approach. The question of *how far* such an extension

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downstream market with the presence of the undertaking dominant on the upstream market, with the exception of an interim decision in the so-called *Roscoff* case. See Commission Decision COMP/IV/34.174 – *Sealink/B&I Holyhead* (interim measures), Commission Decision COMP/IV/34.689 – *Sea Containers Ltd/Stena Sealink* (interim measures) and for the *Roscoff* case, Commission Decision COMP/IV/35.388 – *Irish Continental Group v. CCI Morlaix*, para 59 (original in French).

[432] BAILEY, JOHN, op. cit. 119, p. 960.

[433] GRAEF, op. cit. 12, p. 221.

[434] Case T-128/98, *Aéroports de Paris* [2000] ECLI:EU:T:2000:290, paras 172-174. The undertaking in question, accused of abusing its dominant position through price discrimination on the downstream market, claimed that it endeavoured to maintain competition and had no interest in distorting competition on the markets on which it was not present.

[435] *Arriva The Shires v London Luton Airport Operation* [2014] EWHC 64 (Ch), paras 99-100.

[436] EUROPEAN COMMISSION, op. cit. 116, para 87.

can go can perhaps fittingly be answered by another Opinion of AG Jacobs who claimed in *Syfait* the existence of a *"narrow range of circumstances in which a dominant undertaking will be obliged to open up its facilities or license its intellectual property rights to a third party for the first time. For such to be the case, some exceptional harm to competition must be shown."*[437]

The scope of cases where access to big data may be sought thus depends on the interpretation of the criterion outlined above and any possible changes to it. One possible source of inspiration for such a change in construction is the "new product" criterion, discussed below, which currently only applies in cases where a refusal concerns inputs protected by intellectual property rights. Nonetheless, some authors have proposed that the logic contained in that test may apply more generally.[438] Even with such inspiration, however, any precise modification of this criterion appears unclear and will have to be settled in time.

7.3. The "New Product" Criterion in Refusal to Supply

As outlined above, the condition that the refusal in a concrete case must prevent the appearance of a new product for which there is potential consumer demand, is currently limited to cases concerning intellectual property rights. Nonetheless, it seems appropriate to outline its meaning and its possible use if, as proposed by Graef, such criterion was applied to access to data (including big data; the discussion below nonetheless refers to data without further specification in line with the academic writing discussed).

In *Magill,* the criterion was fulfilled because the refusal in that case prevented the production of a weekly guide with comprehensive television programme listings.[439] In *Microsoft*, however, it was sufficient that the refusal prevented only the introduction of "technical developments", which nonetheless impeded the introduction of products with innovative features.[440]

Graef submits that both intellectual property law and competition law share an in-built respect to innovation and consumer welfare;[441] she proposes that intellectual property law protection is not

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[437] Opinion of Advocate General in Case C-53/03, *Syfait* [2005] ECLI:EU:C:2004:673, para 66.

[438] BAILEY, JOHN, op. cit. 119, p.960, see footnote 655. At the same time, it is admitted therein that in a way, in each of the cases where the "new product" criterion was applied, the dominant undertaking was at least to some extent present on the downstream market; e.g. in *Magill,* the broadcasters provided "highlights" of the week's programmes, which were, however, only partially substitutable to the comprehensive weekly guides, which it was not possible to produce without the necessary input. See Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98*,* para 52.

[439] Joined cases C-241/91 P and C-242/91 P, *RTE and ITP v Commission* [1995] ECLI:EU:C:1995:98*,* para 54.

[440] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, paras 632, 648-649; in particular, in para 632, the Court pointed out that *"[t]he Commission thus took particular care to ascertain that Microsoft's refusal was a 'refusal to allow follow-on innovation', that is to say, the development of new products, and not a mere refusal to allow copying."*

[441] GRAEF, op. cit. 12, p. 201.

the only case where an input, the creation of which might have required significant expenses, deserves shielding from "free-riding" by other undertakings.[442] Thus, she proposes to extend the "new product" requirement even to cases without an intellectual property element, including situations where access to data is sought.[443] Her proposal with respect to data is to take into account the influence of network effects (or other market failures, though network effects seem to be the most likely manifestation of them); where the downstream market would be "locked-in" because of them and the undertaking dominant on the market for data would be in a stable leading position on such a downstream market, the criterion could be disposed of. On the other hand, in the absence of such a situation, the emergence of a "new product" would have to be demonstrated.[444]

While the adoption of this test remains an issue for future decisions, the addition of this criterion would most likely make it difficult to seek access to big data for the replication of an already existing product, while the upcoming providers of innovative products would have an easier time fulfilling this condition.

7.4. Absence of Objective Justification for Refusal to Supply

Lastly, even if all of the criteria above are fulfilled, it is still possible for an undertaking to escape the finding of a prohibited refusal to supply in light of a potential objective justification, the outline of which is provided in this subchapter.

The dominant undertaking is generally entitled to plead a relatively wide variety of defences to its abusive behaviour; it is up to competition authorities or courts to subsequently balance such justifications against the harm caused to customers and consumers.[445]

While the dominant undertaking cannot simply claim that its abusive behaviour is in its commercial interests, it can successfully argue that it is justified in refusing to work with an undertaking who is a "bad debtor", fails to uphold its contractual obligations or uses the input provided by the dominant undertaking to break the law.[446] The application of these justifications will nonetheless be case-specific. Another often used justification – the lack of capacity or the temporary need to cease or reduce supply – will be unlikely to succeed with respect to big data. Even though data storage can be a significant expense,[447] it will not be necessary to expand it due to

[442] Ibid., p. 202.
[443] Ibid., p. 209.
[444] Ibid., p. 226.
[445] Ibid., p. 961.
[446] WHISH, BAILEY, op. cit. 29, p. 749.
[447] RUBINFELD, GAL, op. cit. 38, p. 363-364.

the necessity to provide access. On the other hand, it may become necessary to increase the capacity of an undertaking's servers in order to accommodate higher traffic therein.[448]

A further commonly used justification is based on the necessity to cover costs associated with the creation of an input, i.e. to guarantee sufficient return on investment. The potential of any such defence will depend on the conditions under which access to the necessary input is provided, and, as Graef points out, on the ability of access-seeking undertakings to pay for such supply.[449] In cases of data, this justification will have to be especially nuanced in cases of highly specialised datasets or big data collected in such volume and variety that it requires a platform operating across multiple markets to provide, as the costs of these types of data will, in all likelihood, be the highest.

One further possible justification has been raised by Graef; it is possible that the dominant undertaking will attempt to use its obligations under EU data protection law in order to dispose of the obligation to provide access to big data. Nonetheless, as will be explained in Chapter 8, this defence could only be raised if personal data is at stake and furthermore, as Graef herself states, the feasibility of such a justification will depend on the scope of discretion granted by data protection law in any concrete circumstances.[450]

Probably the most important defence is the negative impact on the dominant undertaking's incentive to innovate because of the access-seeking undertakings' "free-riding" on the indispensable input; by the same token, such argument can also be made with respect to access seeking undertakings' incentives.[451] Such a defence was employed by Microsoft before the General Court; Jones and Suffrin, however, point to exactly this attempt in order to highlight the difficulty of succeeding with a justification once a preliminary finding of abuse is made.[452]

In particular, it appears from *Microsoft* that in order to succeed, the dominant undertaking must provide a sufficiently detailed justification, most likely at least outlining the future innovations that the undertaking is going to make.[453] Furthermore, even if a plausible claim regarding incentives to innovate is made, the Commission will consider such a defence, but will also in the process examine *"the structural changes in the market conditions that imposing [an obligation to provide access] will bring about, including the development of follow-on innovation by competitors."*[454]

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[448] See e.g. Joined cases 6 and 7/73, *Commercial Solvents* [1974] ECLI:EU:C:1974:18, para 28.

[449] GRAEF, op. cit. 12, p. 277-278.

[450] Ibid., p. 276.

[451] WHISH, BAILEY, op. cit. 29, p. 749, EUROPEAN COMMISSION, op. cit. 116, para 89.

[452] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, paras 688-712; JONES, SUFFRIN, op. cit. 4, p. 531.

[453] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, paras 698; Microsoft chiefly claimed that an obligation to supply interoperability information to other undertakings would eliminate its "future incentives to invest in the creation of more intellectual property" while the General Court wanted Microsoft to specify technologies and products Microsoft had in mind. See also JONES, SUFFRIN, op. cit. 4, p. 531.

[454] EUROPEAN COMMISSION, op. cit. 116, para 89.

Therefore, even if the dominant undertaking manages to outline its plans with the big data it holds, undertakings that seek to provide innovative products or at least products with innovative features may overcome this justification.

In conclusion, the success of any defence will depend on the circumstances of the case. On one hand, undertakings do have a variety of arguments to choose from at their disposal, on the other, the successful use of a pleading such as the "innovation" defence appears rather complicated, especially if the undertaking seeking access is planning to launch a new or an innovative product.

8. Access to Big Data in Practice

The previous chapters have dealt with the necessary analytical steps that need to be made before a finding of a refusal to supply can be arrived at, from the definition of relevant markets to the application of the criteria defining a refusal to supply in EU law. The aim of this chapter is to briefly outline the conditions of legal (subchapter 8.1.), financial (subchapter 8.2.) and technical (subchapter 8.3.) nature, under which access to big data is most likely to be granted if a successful case is made. These three types of conditions are thus discussed in turn below.

8.1. Legal Conditions of Access to Big Data

Firstly, as already suggested in the previous chapter, it is possible that big data (or its part) a successful access-seeking undertaking requires for competing on the downstream market will be classifiable as *personal data* under GDPR. According to Art. 4 (1) of GDPR, personal data means any information relating to an *identified* or *identifiable* natural person, a so-called data subject.[455]

Furthermore, the wide definition given to personal data by the EU legislature has been developed in the same way by the Court of Justice, which held in *Nowak* that *"[personal data] is not restricted to information that is sensitive or private, but potentially encompasses all kinds of information, not only objective but also subjective, in the form of opinions and assessments, provided that it 'relates' to the data subject."*[456] In the *Nowak* and *Breyer* rulings, the Court even included under the term of personal data written answers submitted by a candidate at a professional examination and any comments made by an examiner with respect to those answers,[457] as well as a so-called dynamic IP address registered by an online media services provider.[458] Because of the development of technology and especially data processing and analytics tools, more and more

[455] Furthermore, under Art. 4 (1) of GDPR, 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."* As to the question of what exactly is understood by the "identifiability" of a person, GDPR itself gives an even more precise explanation in Recital 26, according to which in order to find *"whether a natural person is identifiable, account should be taken of all the means reasonably likely to be used, such as singling out, either by the controller or by another person to identify the natural person directly or indirectly. To ascertain whether means are reasonably likely to be used to identify the natural person, account should be taken of all objective factors, such as the costs of and the amount of time required for identification, taking into consideration the available technology at the time of the processing and technological developments."*

[456] Case C-434/16, *Nowak* [2017] ECLI:EU:C:2017:994, para 34.

[457] Case C-434/16, *Nowak* [2017] ECLI:EU:C:2017:994, para 62.

[458] See Case C‑582/14, *Breyer* [2016] ECLI:EU:C:2016:779, para 49, where the Court adds that a dynamic IP address may constitute personal data *in relation to the provider* when *"a person accesses a website that the provider makes accessible to the public [and] where the latter has the legal means which enable it to identify the data subject with additional data which the internet service provider has about that person."*

information will come under the definition of personal data; this, in turn, means that GDPR will apply to increasingly more situations.[459]

One way how to "escape" the obligations laid down by the GDPR is to *anonymise* the data provided to other undertakings; anonymous information or data is understood as "*information which does not relate to an identified or identifiable natural person [or] data rendered anonymous in such a manner that the data subject is not or no longer identifiable [.]"*[460] In contrast, *pseudonymised* data, i.e. data processed in such a manner that it can no longer be attributed to a specific data subject without the use of additional information[461] is still considered personal data and GDPR thus still applies to it.[462] In order to distinguish anonymised data from pseudonymised data, it is vital that the data in question may no longer be used to identify a natural person by using *all the means* reasonably likely to be used by either the data controller or even a third party and that the processing is *irreversible*.[463]

If data cannot be effectively anonymised, then GDPR will apply and the undertakings will have to comply with its provisions. Consequently, any sort of *processing* of personal data, defined principally as *"any operation or set of operations which is performed on personal data or on sets of personal data,"* will have to be based on one of the reasons in Art. 6 GDPR in order to qualify as "lawful" as required by Art. 5 (1) (a) therein. In particular, this means that both the transfer of data between undertakings and the further processing by the undertaking which obtained access to such data will have to comply with at least one of the reasons in Art. 6 GDPR.

In practice, the most relevant legal bases for such processing of personal data are to be found in Art. 6 (1) (a), (c) and (f). Firstly, under letter (a), the lawful processing may be founded by the consent of the data subject, often given through agreeing with the terms and conditions of a given service, which may include consent to the access and processing of personal data by third parties. Secondly, the transfer of data may be also justified by the need to comply with a legal obligation as suggested by letter (c) of the Article, in particular if providing access to data has been ordered by a court or a competition authority. Lastly, processing under letter (f) may be based on the "legitimate interests" of undertakings, which, however, need to be balanced against the fundamental rights and freedoms of data subjects (including the rights to privacy and data protection in Articles 7 and 8 of the Charter of Fundamental Rights of the EU).

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[459] PURTOVA, Nadezhda. Broad concept of personal data and future of EU data protection law. *Law, Innovation and Technology*. 2018, **10**(1), p. 78-79. As the Commission has recently also explained, an inventive solution to this problem would be to provide a possibility of an "opt-out" to data subjects. See EUROPEAN COMMISSION, op. cit. 13, p. 104.

[460] Recital 26 GDPR.

[461] Art. 4 (5) GDPR.

[462] VOIGT, Paul and Axel VON DEM BUSSCHE. *The EU General Data Protection Regulation (GDPR): A Practical Guide*. Cham: Springer International Publishing, 2017, p. 15.

[463] ARTICLE 29 DATA PROTECTION WORKING PARTY. *Opinion 05/2014 on Anonymisation Techniques*. 10. 4. 2014. 0829/14/ENWP216, p.5 Also available at: https://www.pdpjournals.com/docs/88197.pdf [accessed 2019-06-27].

In practice, the concrete basis will depend on the situation; for instance, if some of the data that is going to be provided to another undertaking fall within the category of "sensitive" personal data, consent will have to be given by data subjects;[464] the same situation will most likely occur when the use of data by the undertaking with newly gained access involves processing for purposes other than those of the dominant undertakings.[465]

8.2. Financial Conditions of Access to Big Data

Secondly, as proposed at the beginning of this chapter, the financial conditions of granting access to big data are discussed. In academic writing, two views on the financial side of the mandatory granting of access to data are present. Firstly, a number of authors claim that administering a remedy for a refusal to supply will be difficult; in particular, courts and competition authorities will effectively have to take on the role of regulators in order to properly enforce their findings and identify themselves the proper price and other "terms of supply".[466]

On the other hand, there are claims that the cost of providing access to data is going to be much lower than in cases where access must be granted to physical infrastructure; according to this view, the costs are only going to cover the expenses on servers or bandwidth.[467]

The situation under EU competition law could be placed in the middle of these claims. As Graef explains on the example of the *Microsoft* case, the Commission requested (without laying down a specific rate of remuneration) that Microsoft supplies interoperability information on the basis of reasonable and non-discriminatory conditions.[468] If Microsoft was able to discriminate between undertakings, it could actually introduce new distortions of competition.[469] In particular, the Commission also ordered that any remuneration required by Microsoft for the supply must not reflect the so-called "strategic value", i.e. value derived from its dominant position on a given market.[470]

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[464] See Art. 9 (1) and (2) (a) GDPR.

[465] In light of the principle of purpose limitation in Art. 5 (2) GDPR. See also ARTICLE 29 DATA PROTECTION WORKING PARTY. *Article 29 Working Party Guidelines on consent under Regulation 2016/679*. 10. 4. 2018. 17/ENWP259 rev.01, p. 12. Also available at: https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=623051[accessed 2019-06-27] where it is suggested that: *"[i]f a controller processes data based on consent and wishes to process the data for another purpose, too, that controller needs to seek additional consent for this other purpose unless there is another lawful basis which better reflects the situation."* This interpretation of the requirement of consent, in light of the principle of purpose limitation, serves as a protection against the "function creep", i.e. unanticipated use of personal data by data controllers.

[466] ABRAHAMSON, op. cit. 103, p. 877; see also KATHURIA, Vikas and Jure GLOBOCNIK. *Exclusionary Conduct in Data-Driven Markets: Limitations of Data Sharing Remedy* [online]. Max Planck Institute for Innovation and Competition Research Paper No. 19-04, 2019 [cit. 2019-06-25], p. 16-17. Available at SSRN: https://ssrn.com/abstract=3337524.

[467] ABRAHAMSON, op. cit. 103, p. 878.

[468] GRAEF, op. cit. 12, p. 278; Commission Decision COMP/37.792 – *Microsoft*, para 1005.

[469] Commission Decision COMP/37.792 – *Microsoft*, para 1006.

[470] Commission Decision COMP/37.792 – *Microsoft*, para 1008 (ii).

The approach of the Commission was subsequently upheld by the General Court and thus, as Graef suggests, the standard for financial conditions of access is derived from this assessment; an undertaking may be required to supply other competitors on the basis of reasonable and non-discriminatory conditions, but without reflecting any strategic value of its asset in the process.[471]

In practice, the FRAND (fair, reasonable and non-discriminatory) standard, otherwise used in the context of the so-called standard essential patents and their licensing, may be used as the relevant benchmark.[472] Accordingly, the dominant undertaking's interests would be compared to those of the undertakings using such data in order to strike a balance between them. This would suggest that the granting of access to big data would be under oversight with respect to this standard.[473]

8.3. Technical Conditions of Access to Big Data

Lastly, the technical aspects of access to big data are going to be relevant as well. It could be argued that in all likelihood, a dominant undertaking would only need to disclose the relevant data itself, not the sources or methods of collection; such a conclusion could be made by way of analogy from the *Microsoft* case, where the company was required to only disclose "interface specifications" necessary for enabling interoperability, but not to provide e.g. the source code of the Windows operating system.

Furthermore, in cases where the relevance of data in time will be a significant characteristic of such an input, the "freshness" of big data will have to be ensured. A convenient way of managing this type of access is the development of "application programming interfaces" or "APIs", which could be defined as functionalities that allow e.g. developers to access data stored in computer systems in a pre-specified and machine-readable format.[474] In such a case, the API would serve as a "gateway" to the big data that the dominant undertaking must provide access to and accordingly, any manipulations with such an interface would be under the scrutiny of competition authorities.

[471] Case T-201/04, *Microsoft* [2007] ECLI:EU:T:2007:289, paras 95-100; GRAEF, op. cit. 12, p. 278.
[472] BAILEY, JOHN, op. cit. 119, p. 804-805.
[473] EUROPEAN COMMISSION, op. cit. 13, p. 97, 109.
[474] GRAEF, op. cit. 12, p. 279

9. Conclusion

This thesis analysed the possibility of obtaining access to big data under the refusal to supply case-law developed by the Court of Justice of the EU. It can be concluded that *in principle*, the legal framework for the assessment of such cases could enable undertakings on downstream relevant markets to seek access to big data held by an undertaking dominant on the upstream relevant market for big data. At the same time, such an approach, if it were to be applied in practice, would require clarification of several points of law discussed in this thesis.

The thesis first outlined the current understanding of the key notions subsequently discussed in further analysis. It explained that "big data" (although a concept that does not have a settled definition) plays a significant role in the rise of online platforms; this is also due to the successful use of so-called network effects and the so-called multi-sided nature of certain markets. Online platforms manage to take advantage of these phenomena, which help them to obtain access to vast amounts of data that are subsequently used by the same platforms to enhance their products and services and further exploit network effects and the multi-sidedness of a number of markets.

The thesis aimed at placing this situation within the framework of the refusal to supply case-law of the Court of Justice; it identified a subset of these cases (involving the refusal to supply an input on an upstream market which subsequently affects the competition on the downstream market, as the input is vital for competing therein) as relevant for the issue. In order to do so, it was first necessary to examine the relevant market definition on the downstream level and subsequently on the upstream level.

With respect to the determination of relevant markets, the thesis proposed that defining both downstream and upstream relevant markets for a scenario concerning such access is feasible, but not straightforward.

With respect to defining downstream relevant markets, the thesis identified several key points that need to be dealt with in order to shed light on the definition of relevant markets in a hypothetical case of refusal to provide access to big data. Firstly, one of the most important methods of determining the issue of substitutability, the so-called SSNIP test, is not dependable when the relevant markets need to be defined within a so-called multi-sided environment. The notion of substitutability usually enables competition authorities and courts, as well as undertakings, to assess whether the products and services provided by one undertaking are interchangeable with products and services provided by another and whether they fall within the same relevant market. Because of the multi-sided nature of certain markets (and the benefits to users following from it), an undertaking may "compensate" for the otherwise detrimental effects of the increase in price

simulated in the SSNIP test. As a result, there is a danger of misinterpreting the results of the simulation and the incorrect definition of a relevant market.

The thesis suggested several modifications to the SSNIP test. One of such changes uses the price structure set by an undertaking operating the platform, i.e. takes account of prices charged to all sided of a market. Such a method does correspond to the doctrinal understanding of online platforms as actors operating in multi-sided markets and has the potential to alleviate the problems with the inefficiency of the SSNIP test; at the same time, even the proponents of this method admit that it is difficult to adopt in practice.

Another possible modification of the SSNIP test involves the introduction of the so-called non-price factors of competition: these encompass criteria such as quality, privacy and/or data protection or innovation. While the thesis accepts that there is merit to the use of any of these factors (with quality having the strongest credentials, to the point where substitutability could be assessed on the basis of the reaction of consumers to a decrease in quality in a so-called SSNDQ test), they are not yet developed into a form that would enable their practical use. In particular, before turning to non-price factors in assessing substitutability, two steps are proposed: firstly, narrowing down the otherwise too broad concepts of quality or innovation to more concrete terms and secondly, using normative benchmarks (possibly stemming from legislation such as GDPR) in order to create objective measuring system of consumers' reactions.

This difficulties with defining relevant markets on the downstream level further manifest themselves in the question of determining the number of relevant markets, as well as in the delineation of geographical relevant markets. With respect to the former, the thesis argues that two methodologies (which are connected, but not necessarily always lead to the same results) – the transaction/non-transaction methodology and the matching methodology – could be used to determine the number of relevant markets that need to be defined.

With respect to the definition of an upstream market, the thesis first examined past decisions of the Commission where data was provided on an upstream market: in the cases of navigational data, financial data as well as broadcast data (with the last one actually placed in this category due to the fact that the downstream market was centred around the provision of corresponding data analysis services), an upstream market for data as an input could have been defined; in none of these cases, however, did the data in question arguably fulfil the definition of big data. The thesis nonetheless proposed two takeaways for access to big data from these existing decisions: the need to describe and delineate the data in question at least in partially concrete terms but not too narrowly, and the necessity to examine the subsequent use of such data on a downstream market (where the analysis of such data rather than pure implementation into a product should lead, with more probability, to a finding of a relevant market for big data).

The thesis further turned to the issue of defining potential, hypothetical markets for big data, derived partially from the fact that no case of access to big data has reached the Commission to date. The thesis accepted that in light of a certain interpretation of the case-law of the Court, it could be possible to arrive at a definition of a potential upstream market for big data, provided that such an exercise leads to a sufficient description of the way big data is used within the operation of the platform (e.g. through the distinction between collection, storage and subsequent analysis of big data) and that the "production processes" as defined by the *IMS* case could thus be identified.

Lastly, the thesis pointed out the need to accurately determine the substitutability of big data as an input sought on the upstream market. It argued that the special properties of big data – often described through the "Four Vs" of volume, variety, velocity and value – need to be taken account of in order to properly determine the inputs that fall within the same upstream relevant market. On the basis of the Commission's decision in *Microsoft/LinkedIn*, it proposed that big data provided on an upstream market may take the form of data that relates at least broadly to some source or topic (e.g. customers and their actions), even if described less concretely than in cases of "standard" data discussed previously in the thesis, and that it ought to bear some relation to its intended use (e.g. use in machine-learning algorithms, which disqualifies smaller, less varied, datasets from being in the same relevant market). Provided that this data is of significant volume, variety, velocity etc., such a case can serve as an inspiration to future decisions where big data serves as an input.

The thesis further turned to the issue of finding a dominant position on such a market. A similar issue as with the tools used to define relevant markets presents itself with respect to the analysis of market power. The arguably most practical tool used in order to ascertain market position and subsequently the market power of an undertaking, i.e. the analysis of market shares, needs substantial modifications in the approach of its application. This thesis proposed to combine the assessment of market shares through monetisation of data (basing market shares on the amount of money obtained from the monetisation of data) and the analysis of availability of such data; it nonetheless remains to be seen whether a similar approach will be adopted in the future. In particular, with respect to big data, the thesis pointed out that even the use of modified market share approach suggested therein relies on the possibility to compare the properties of big data (which nonetheless the author argues could be possible).

Furthermore, the thesis analysed the barriers to entry and expansion and their impact on the determination of dominant position. Such an examination could have significant impact on the outcome of any case where access to big data is sought, as it can not only modify or disprove the conclusions taken from the "first step" presented by the use of market shares, but also, in the event that it would not be possible to use such a preliminary method, can effectively serve as the main test for the finding of a dominant position. In practice, it will be necessary to examine firstly, the costs

of and difficulties of obtaining data and secondly, the impact of network effects on the collection of data and the possibilities of developing such effects. Such an assessment, however, can currently be only conducted on a case-by-case basis with only limited clarity.

The thesis nonetheless argues that it could be possible to find that an undertaking holds a dominant position in a market for big data; due to the dynamic nature of such a market (as data, in general, is relatively easy to obtain), such a finding will be most probable if one undertaking is in a position of a monopoly or a near-monopoly.

The thesis subsequently turned to the test needed to establish an anticompetitive refusal to supply provided that relevant markets are ascertained and a dominant undertaking exists. With respect to the criteria that need to be fulfilled in order to find a violation of Art. 102 TFEU through a refusal to provide access to big data, two of these conditions can have significant impact on the success of any such case. Firstly, the criterion of indispensability can shed light on the essential nature of big data for competition on downstream relevant markets, although the analysis of indispensability is still largely dependent on case-by-case determination. In particular, the *Microsoft/LinkedIn* decision was again taken as a case that could shed light on the practical assessment of this step of the test; if data, usable for a certain goal (e.g. developing a machine-learning functionality in a service), especially for data analysis of similar use, can be obtained (provided that the quality of data is comparable) from e.g. both internal and external sources, the criterion of indispensability will not be met. Secondly, the condition of elimination of effective competition on the downstream market will, in all likelihood, be crucial for the issue of access to data where data has not yet been provided to third parties. As the interpretation of this factor currently stands, it will not be possible to rely on the refusal to supply framework in such a scenario. Two other criteria, the absence of objective justification and the "new product" criterion were also discussed, although the former two seem to be the most determinative of the success of any request to access big data in the control of a dominant undertaking.

Finally, the thesis proposed the basic questions that need to be dealt with once access to big data is successfully sought in the form of legal, financial and technical conditions of such access.

List of Abbreviations

Article	Art.
Advocate General	AG
General Data Protection Regulation	GDPR
European Union	EU
Treaty on the Functioning of the European Union	TFEU
The Court of Justice of the European Union	Court
European Commission	Commission

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Přístup k big data na základě „refusal to supply“ judikatury Soudního dvora EU

Abstrakt

Tato diplomová práce se věnuje tématu přístupu k tzv. big data z pohledu soutěžního práva EU. Práce se zabývá tím, zda a do jaké míry je možné využít tzv. „refusal to supply“ judikaturu vytvořenou Soudním dvorem EU k tomu, aby bylo možno získat přístup k big data, která jsou v dispozici dominantního podniku.

Práce shledává, že za určitých podmínek je možné, aby byly naplněny všechny nezbytné kroky k tomu, aby mohl podnik od dominantního podniku žádat přístup k big data pod kontrolou tohoto podniku.

Tato práce se proto nejprve zabývá tím, jaké faktory působí na tzv. online platformy, které se v postavení dominantních podniků z hlediska přístupu k big data mohou ocitnout velmi často. Práce analyzuje působení tzv. síťových efektů, vlivu analýzy dat na jejich efektivitu a problematiku tzv. vícestranných trhů v souvislosti s postavením online platforem.

Následně je předmětem práce posouzení jednotlivých kroků, které v souhrnu vedou ke klasifikaci chování dominantního podniku jako zneužití jeho dominantního postavení skrze odepření přístupu k big data.

Z hlediska definice relevantních trhů v soutěžním právu je zásadní rozdělení na tzv. downstream a upstream trhy, jelikož v případech „refusal to supply“ posuzovaných Soudním dvorem EU je typickou situací právě dominantní postavení jednoho podniku na upstream trhu a následné odmítnutí přístupu ke zdroji nezbytném pro soutěž na downstream trhu. Práce nicméně ukazuje, že definice obou typů trhů je v případech přístupu k big dat problematická; jednak s ohledem na vícestrannost trhů, které zahrnují online platformy a jednak kvůli nutnosti definovat upstream trh jako trh s big data.

Práce dále zkoumá, jakým způsobem je možné dojít k zjištění dominantního postavení podniku na upstream trhu s daty. Zabývá se možností určit tržní podíly za takové situace a bariérami vstupu na relevantní trh v podobě nákladů na získání dat a vytvoření síťových efektů.

Dále práce zkoumá jednotlivé kroky v rámci testu pro „refusal to supply“ dle judikatury Soudního dvora EU. Jako zásadní zejména shledává otázku nezbytnosti big data pro působení podniku na downstream trhu, stejně jako otázku vyloučení efektivní soutěže na relevantním trhu a její interpretaci v dosavadní judikatuře.

Nakonec práce stručně představuje podmínky, za kterých by měl být přístup k big data poskytnut.

Klíčová slova: právo Evropské unie, soutěžní právo, zneužití dominantního postavení, odepření přístupu, big data

Access to big data under the "refusal to supply" case-law of the Court of Justice of the EU

Abstract

This thesis deals with the topic of access to the so-called big data from the perspective of EU competition law. The thesis deals with the question whether and if so, to what extent it is possible to use the so-called "refusal to supply" case-law created by the Court of Justice of the EU to gain access to big data held by a dominant undertaking.

The thesis finds that, under certain conditions, it is possible for all necessary steps to be fulfilled to allow one undertaking to request access from a dominant undertaking to big data under the control of that undertaking.

This thesis therefore firstly discusses what factors affect the so-called online platforms, which can often find themselves in the position of dominant undertakings in terms of access to big data. The thesis analyses the effects of the so-called network effects, the impact of data analysis on their efficiency and the issue of the so-called multi-sided markets in connection with the position of online platforms.

Subsequently, an assessment of the individual steps which, in summary, lead to the classification of the behavior of a dominant undertaking as an abuse of its dominant position by refusing access to big data is conducted.

From the point of view of defining relevant markets in competition law, the division into downstream and upstream markets is essential; as the case-law of the Court of Justice shows, the typical situation of a refusal to supply involves the dominant position of one undertaking on the upstream market and the refusal to provide an input necessary to compete on the downstream market. However, the thesis shows that the definition of both types of markets is problematic in cases of access to big data, both with regard to the multi-sidedness of markets that include online platforms and with the need to define an upstream market as a market for big data.

The thesis further examines how it is possible to determine the dominant position of an undertaking on the upstream market for big data. It addresses the possibility of determining market shares in such a situation and the barriers to entry into the relevant market in the form of costs of obtaining data and the creation of network effects.

Furthermore, the thesis examines the steps in the refusal to supply test according to the case law of the Court of Justice of the EU. In particular, it considers the issue of the indispensability of big data for the operation of an undertaking on the downstream market as

well as the elimination of effective competition therein and its interpretation in the existing case-law as the two crucial questions.

Finally, the thesis briefly presents the conditions under which access to big data should be provided.

Keywords in English: European Union law, competition law, abuse of dominant position, refusal to supply, big data